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CLUSTERING AND VISUALIZING SURABAYA CITIZEN ASPIRATIONS BY USING TEXT MINING

Case Study: Media Center Surabaya

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ASPIRATIONS BY USING TEXT MINING
Case Study: Media Center Surabaya**

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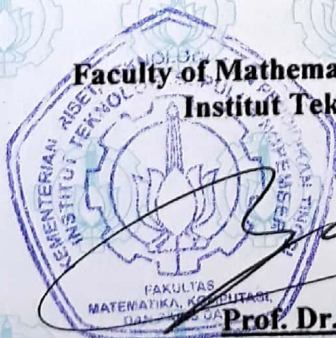


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CLUSTERING AND VISUALIZING SURABAYA CITIZEN ASPIRATIONS BY USING TEXT MINING CASE STUDY: MEDIA CENTER SURABAYA

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ABSTRACT

This research aims to identify and visualize the topics of citizen opinion about Surabaya City, Indonesia. Data used in this research is Surabaya citizen opinion taken from Media Center Surabaya. The topics were obtained by using clustering method. The pre-processing data, by cleaning the noise; i.e. basic operations and cleaning, stemming, and feature extraction, is primarily assigned to reach the goal. The optimum number of clusters was determined by using the *K*-Means clustering by calculating the Silhouette value and Calinski-Harabasz Index (CHI) of 2 until 18 clusters. The most optimum clusters were determined by considering the highest silhouette value and CHI. This research compared four options of pre-processing data. They are pre-processing with basic cleaning and operations; stemming, basic cleaning and operations; LDA, basic cleaning and operations; and stemming, LDA, and basic cleaning and operations. The result showed that pre-processing by using LDA as feature extraction performs the best result. Feature extraction improves the cluster result but stemming process seems to give no significant difference. Additionally, this proposed method offers 15 clusters as the optimum number of clusters which were most mentioned topics by Surabaya citizen. Furthermore, the clusters were visualized by using word clouds to highlight the more frequent appeared words. They are government service, trash, ID card, illegal parking area, government program and information., streetlights, street, computer training (BLC) by Surabaya government, potholes, administration letter, media center, online service for administration, education, clean water distribution, service hour by government. The result attempts the information for the Surabaya government of which sector that citizen most concerned about which mostly related to the street problems. For instances traffic jam, road construction, illegal parking area, street lights, and potholes. Moreover, the result encourages collaboration between public and government to concern and solve those problems.

Keywords: text clustering; topic identification; public opinion; LDA; *K*-Means

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PREFACE

First, the author would like to express the gratitude to Allah S.W.T so that the author could finish this thesis, entitled:

Clustering and Visualizing Surabaya Citizen Aspirations by Using Text Mining (Case Study: Media Center Surabaya)

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Surabaya, 5th June 2018

Sa'idah Zahrotul Jannah

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CHAPTER I

INTRODUCTION

1.1 Background

One of the criteria of good government is responsive and transparent to their citizen (Ekundayo, 2017). Surabaya Government attempts to be more responsive to aspirations or opinions from the citizen. The government made an online portal, called Media Center Surabaya, as a forum to accommodate public complaints or aspirations which are related to the development and performance of Surabaya government. It is also expected to increase public concern to the development of Surabaya city (Dinas Komunikasi dan Informatika, 2012).

The citizen can access Media Center Surabaya through several ways, such as Twitter (@SapawargaSby), Facebook page (Sapawarga Kota Surabaya), email (mediacenter@surabaya.go.id), walk-in service, call center, SMS, newspaper, Instagram, official website (mediacenter.surabaya.go.id) or mobile application (E-Wadul). The aspiration which is delivered to E-Wadul will be appeared in the official website of Media Center Surabaya and vice versa. The aspirations could be suggestions, critics, complaints, asking for information, and appreciation to the government. It will be sent directly to the related government officer. After that, the response will be given to the citizen through the same access that they used (Dinas Komunikasi dan Informatika, 2012).

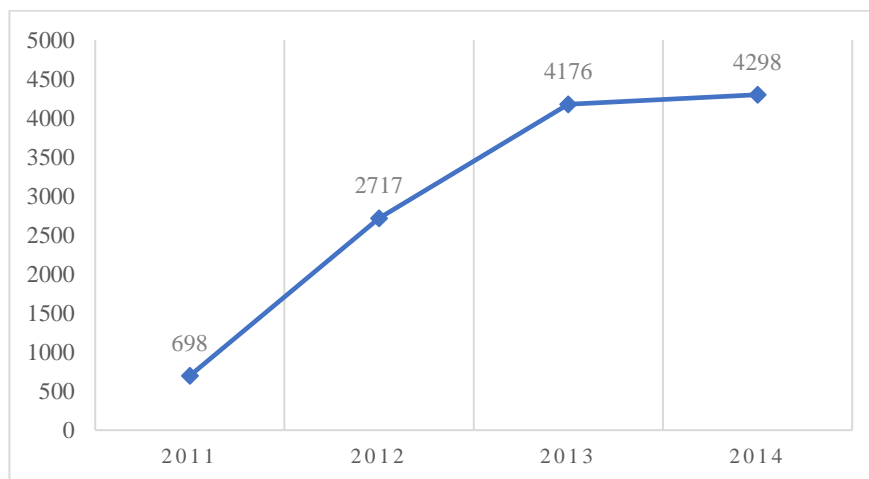


Figure 1.1 The Number of Aspirations in Media Center Surabaya

Media Center Surabaya has been used by the citizen since 2011. It can be seen from Figure 1.1 that there were 698 aspirations in 2011. The number gradually increased to 2717 aspirations in 2012, 4176 aspirations in 2013, and 4298 aspirations in 2014. That uptrend showed that the citizens were enormously participating to state their aspirations from 2011 to 2014 (Dinas Komunikasi dan Informatika, 2015). Moreover, the citizen mostly gave their aspirations through the website of Media Center Surabaya or mobile application E-Wadul rather than other access. Below is the graph of the number of citizen aspirations on each access in 2017 (Dinas Komunikasi dan Informatika, 2017).

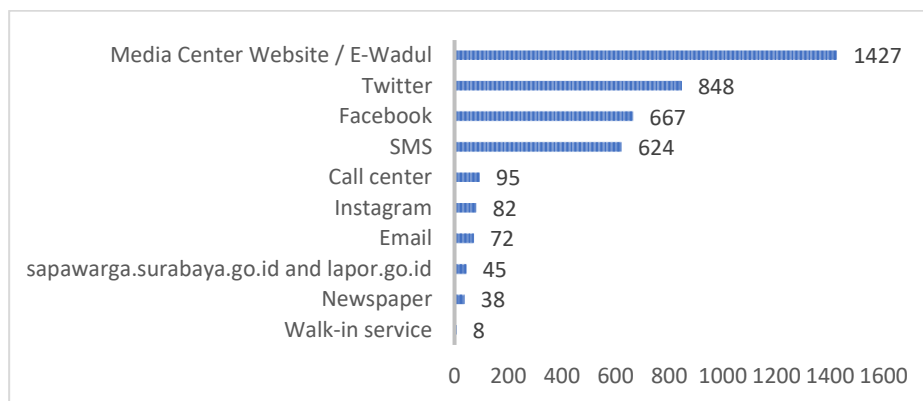


Figure 1.2 The Number of Citizen Aspirations on Each Media Center Access in 2017

Figure 1.2 shows that the citizen mostly made their aspirations on the website of Media Center Surabaya or E-Wadul. There were 1427 aspirations in Media Center Website or E-Wadul (Dinas Komunikasi dan Informatika, 2017). Then, the figure also presents that the conventional ways, such as writing aspirations on a newspaper and walk-in service, have the lowest number of aspirations. It represents that nowadays most people prefer to give their aspirations by online which is the easiest way, such as through official website, Twitter, Facebook, SMS, call center, Instagram, and Email.

Media Center Surabaya is operated by Department of Communications and Informatics Surabaya. Every month, Department of Communications and Informatics Surabaya analyzes and makes a monthly report about descriptive statistics of citizen aspirations in Media Center Surabaya. It delivered the most mentioned topics that were concerned by citizens in each government department. Thus, they know what topics that need to be evaluated (Dinas Komunikasi dan

Informatika, 2012). Moreover, by knowing the topics, it can help the government to understand and summarize large collections of aspirations from citizen (Nair, 2016). Furthermore, the government is expected to have precaution and planning about the development and performance of the city without waiting some complaints from citizen.

However, every aspiration is assigned to a specific topic manually by the administrators of Media Center Surabaya. It tends to be subjective since there are three administrators that might have different opinion to assign a document to a topic. Since large amounts of data are collected everyday, it could increase human error and becomes difficult to understand the information from the data. It is also time-consuming, meanwhile, the government needs a faster way to extract the information (Ghazizadeh, McDonald, & Lee, 2014).. Thus, it is not an effective way for doing the analysis.

One way which is considered to be an appropriate way to solve this problem is by doing text mining. Text mining is a process of extracting information from text (Allahyari, et al., 2017). The ability to extract information automatically cuts down the time spent on knowledge discovery from documents. Moreover, text mining can unlock hidden information and develop new knowledge (McDonald & Kelly, 2012). For example, it has been used to identify new therapeutic uses for thalidomide (M., R., LT, AR, & G., 2003 in McDonald & Kelly, 2012).

Text mining implementation that can be applied in this research is identifying topics so that the administrators of Media Center Surabaya do not need to classify the aspirations manually. Topic identification is useful for extracting information from a large collection of documents into certain themes to understand the documents and other relevant topics (Wang, Ma, & Zhang, 2016). Gonzalez-Brambila & Gonzalez (2015) implemented text mining and topic modeling to find topics and patterns in interview to identify the main themes that leaders and entrepreneurs talk about. Moreover, Wang, Ma, & Zhang (2016) used topic modeling to capture meaningful structure among collections of documents about adolescent substance use and depression.

This research used clustering method, K-Means, to obtain the topic that people in Surabaya most concerned. Before doing the analysis, pre-processing data

is needed to reduce noise in the data. Some pre-processing steps were applied. Besides, there are two steps that were being compared to get the effectiveness of resulting the clusters. Those steps are stemming and feature extraction.

The clustering process was done by discovering the optimum number of clusters. Three cluster evaluations were performed, such as Sum of Square (SSE), silhouette coefficient, and Calinski-Harbasz Index (CHI) to attempt the optimum number of clusters. Later, the documents on each cluster were visualized by using a word cloud to obtain the topic. A good clustering designated to achieve specific topic for each cluster.

1.2 Problem Statements

The problem statements of this research are

1. How to get the topic of Surabaya citizen opinion that are obtained from Media Center Surabaya?
2. How to visualize the topics of Surabaya citizen opinion that are obtained from Media Center Surabaya?

1.3 Objectives

The goals of this research are

1. To find the topics of Surabaya citizen opinion that are obtained from Media Center Surabaya.
2. To visualize Surabaya citizen opinion that are obtained from Media Center Surabaya on each topic.

1.4 Contributions

The contributions of this research are:

1. Finding the topics of Surabaya Citizen opinion that are obtained from Media Center Surabaya.
2. Visualizing Surabaya citizen opinion that are obtained from Media Center Surabaya on each topic.

1.5 Limitations

This research is a case study of citizen opinion in Surabaya that are obtained from Media Center Surabaya.

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CHAPTER II

LITERATURE REVIEW

2.1 Text Mining

2.1.1 Definition of Text Mining

Text mining is a knowledge discovery process of a document collection over time by using a suite of analysis tools. Text mining extracts useful information to identify and explore interesting patterns. The patterns are found in the unstructured textual data in the collection of documents (Feldman & Sanger, 2007).

Mostly the aims of text mining are discovering patterns across very large document collections. The number of documents can be many thousands to the tens of millions. However, extremely large document collections with very high rates of document change can pose performance optimization challenges for various components of a text mining system (Feldman & Sanger, 2007).

In text mining area, a document can be very informally defined as a unit of discrete textual data within a collection that usually correlates with some real-world document such as a business report, e-mail, research paper, manuscript, press release, article, or news story. A document can be recognized as a very formally organized to the very ad hoc (Feldman & Sanger, 2007).

2.1.2 Pre-processing

Data mining assumes that the data have already been stored in a structured format, so pre-processing is important to be done before doing the analysis. Pre-processing focus on two critical tasks such as scrubbing and normalizing data and creating extensive numbers of table joins. In text mining, pre-processing data used to transform unstructured data stored in document collections into a more explicitly structured format (Feldman & Sanger, 2007).

The preprocessing steps used in the text mining analysis are:

1. Basic Cleaning and Operations

Clean data is a data without noise to get useful and valuable information for the analysis. In the text mining, clean data is a data without unwanted stuffs, such as new lines, URL, punctuations, numbers, mentions or username (Angiani, et al.,

2016). Therefore, the first step of text mining preprocessing is removing those unimportant or disturbing elements for the analysis.

Then, all the text is converted into the same case, either all upper case or lower case. The process is called as case folding. It is used to avoid case sensitive in the next operation and speed up comparisons during the indexing process (Manning, Raghavan, & Schutze, 2009).

The next operation is filtering out some words from the documents, called as stopwords. These words are usually pronouns, articles, or some extremely common words that are excluded from the vocabulary because they have a little value in the text information retrieval (Manning, Raghavan, & Schutze, 2009).

The last operation is tokenizing. It is a process to split the text into smaller parts called tokens. The tokenizing depends on the analysis. It can be performed from the text of paragraphs into individual sentences or from sentences into words.

2. Stemming

Stemming is the process of reducing a word to its word stem that affixes to suffixes and prefixes or to the roots of words known as a lemma (Manning, Raghavan, & Schutze, 2009). Python library called Sastrawi can be used for stemming process for Bahasa Indonesia documents. Sastrawi is a stemmer library designed for easy use. That stemmer is based on the algorithm of Nazief and Adriani, then improved with Confix Stripping Algorithm, then improved again with Enhanced Confix Stripping Algorithm and finally upgraded with Modified Enhanced Confix Stemmer.

The stemmer algorithm that was developed by Nazief and Adriani groups affixes into categories, such as (Arifin, Mahendra, & Ciptaningtyas, 2017):

- 1) Inflection Suffixes, a set of suffixes that do not alter the root word. There are two categories of inflection suffixes:
 - a. Particle (P), including “-lah”, “-kah”, “-tah”, and “-pun” particles.
 - b. Possessive Pronoun (PP), including “-ku”, “-mu”, “-nya”.
- 2) Derivation Suffixes (DS), a set of suffixes that are directly applied to root words, such as “-i”, “-kan”, and “-an”.
- 3) Derivation Prefixes (DP), a set of prefixes that are applied either directly to root words or to words which have up to two other derivation prefixes. It is

divided into two categories, such as complex prefixes (“me-“, “be-“, “pe-“, and “te-“) and plain prefixes (“di-“, “ke-“, and “se-“).

Based on that classification of affixes, the Indonesian language word model is:

$$[DP + [DP + [DP+]]] \text{ root - word } [[+DS][+PP][+P] \quad (2.1)$$

In addition, there are limitations on that rules, such as:

- a. There are some disallowed prefixes and suffixes combinations. The list is shown in Table 2.1.
- b. Some affixes cannot be applied repeatedly.
- c. If a word only has one or two characters, the stemming process is not attempted.
- d. Prefixes adding may change the root word or previously-applied prefix.

The algorithm of Nazief and Adriani stemmer is elaborated as follows (Asian, 2007):

- 1) In the beginning and at each step, always check the current word against the root word dictionary. If the word from stemming process was found in the dictionary, the word is considered to be a stem and stemming process can be stopped.
- 2) Remove inflectional suffixes. Start from removing inflectional particle (P) suffixes {“-kah”, “-lah”, “-tah”, or “-pun”}, then any inflectional possessive pronoun (PP) suffixes {“-ku”, “-mu”, “-nya”}. For example, the word “bukumulah” <it is your book that> is stemmed first to “bukumu” <your book>, and then to “buku” <book>. This word appeared in the dictionary, so stemming process is stopped. According to the affix model, after removing inflectional suffixes, the model become:

$$[[[DP+] DP+] DP+] \text{ root - word } [+DS] \quad (2.2)$$

- 3) Remove derivation suffixes {“-i”, “-kan”, and “-an”}. In the affix model, this leave:

$$[[[DP+] DP+] DP+] \text{ root - word} \quad (2.3)$$

Consider the word “menjualkan” <to sell for>; this is stemmed to “menjual” <to sell>. Since this is not a valid dictionary root word, prefix removal is needed in the next step.

- 4) Remove derivation prefixes {“be-“, “di-“, “ke-“, “me-“, “pe-“, “se-“, and “te-“}:

- a. Step 4 stops if:
- The identified prefix forms an invalid affix pair with a suffix that was removed in Step 3; the invalid pairs are listed as follows:

Table 2.1 The Disallowed Prefixes and Suffixes Combinations in Bahasa Indonesia

Prefix	Disallowed Suffixes
"ber-"	"-i"
"di-"	"-an"
"ke-"	"-i" and "-kan"
"me-"	"-an"
"ter-"	"-an"
"per-"	"-an"

- The identified prefix is identical to a previously removed prefix; or
 - Three prefixes have already been removed.
- b. Identify the prefix type and disambiguate if necessary. Prefixes may be of two types:

- Plain. The prefixes {"di-", "ke-", "se-"} can be removed directly.
- Complex. Prefixes starting with {"be-", "te-", "me-", or "pe-"} must be further disambiguated using the rules described in Table 2.2 because these have different variants. The prefix "me-" could become "mem-", "men-", "meny-", or "meng-" depends on the letters at the beginning of the root word.

In Table 2.2 the letter "V" indicates a vowel, the letter "C" indicates a consonant, the letter "A" indicates any letter, and "P" indicates a short fragment of a word such as "er". The prefix is separated from the remainder of the word at the position indicated by the hyphen. A lowercase letter following a hyphen and outside braces is a recoding character. If the initial characters of a word do not match any of these rules, the prefix is not removed.

Table 2.2 Template Formula for Derivation Prefix Rules

Rule	Construct	Return
1	berV...	ber-V... be-rV...
2	berCAP...	ber-CAP... where C!= 'r' and P!= 'er'
3	berCAerV...	ber-CAerV...where C!= 'r'
4	belajar	bel-ajar...
5	beC ₁ erC ₂ ...	be- C ₁ erC ₂ ...where C ₁ != {'r' 'l'}
6	terV...	ter-V... te-rV...
7	terCerV...	ter-CerV...where C!= 'r'

Table 2.2 Template Formula for Derivation Prefix Rules (Continue)

Rule	Construct	Return
8	terCP...	ter-CP...where C!=‘r’ and P!=‘er’
9	teC ₁ erC ₂ ...	te- C ₁ erC ₂ ...where C ₁ !=‘r’
10	me{lr w y} V...	me-{lr w y} V...
11	mem{b f v}...	mem-{b f v}...
12	mempe{r l}...	mem-pe...
13	mem{rV V}...	me-m{rV V}... me-p{rV V}...
14	men{c d j z}...	men-{c d j z}...
15	menV...	me-nV... me-tV...
16	meng{g h q}...	meng-{g h q}...
17	mengV...	meng-V... meng-kV...
18	menyV...	meny-sV...
19	mempV...	mem-pV...where V!=‘e’
20	pe{w y} V...	pe-{w y} V...
21	perV...	per-V... pe-rV...
23	perCAP...	per-CAP...where C!=‘r’ and P!=‘er’
24	perCAerV...	per-CAerV...where C!=‘r’
25	pem{b f v}...	pem-{b f v}...
26	pem{rV V}...	pe-m{rV V}... pe-p{rV V}...
27	pen{c d j z}...	pen-{c d j z}...
28	penV...	pe-nV... pe-tV...
29	peng{g h q}...	peng-{g h q}...
30	pengV...	peng-V... peng-kV...
31	penyV...	peny-sV...
32	pelV...	pe-lV...Exception: for “pelajar”, return ajar
33	peCerV...	per-erV...where C!=‘r w y l m n’
34	peCP...	pe-CP...where C!=‘r w y l m n’ and P!=‘er’

- c. As it is a recursive process, if a dictionary lookup for the current word fails, repeat Step 4. Process stops if the word is found in the dictionary.
- 5) If the word has still not been found after recursive prefix removal, check whether recording is possible by examining the last column of Table 2.2, which shows the prefix variants and recoding characters to use when the root word starts with a certain letter, or when the first syllable of the root word ends with a certain letter or fragment. A recoding character is a lowercase letter following the hyphen and outside the braces. Not all prefixes have a recoding character.
- 6) The algorithm returns the original unstemmed word if all steps are unsuccessful.

The algorithm proposed by Nazief and Adriani has been improved by Asian (2007) which is called Confix Stripping Algorithm. The detail of that algorithm is as follows:

- 1) Improving the dictionary to be more complete.
- 2) Modifying and adding rules. The list of new and modifying rules are as follows:

Table 2.3 Modified and Additional Rules for Derivation Prefix by Confix Stemmer Algorithm

Rules		Construct	Return
modified rule	12	mempe...	me-pe...
modified rule	16	men{g h q k}...	meng-{g h q k}...
new rule	35	terC ₁ erC ₂ ...	ter-C ₁ erC ₂ ... where C ₁ !="r"
new rule	36	peC ₁ erC ₂ ...	pe-C ₁ erC ₂ ... where C ₁ !={r w y l m n}

- 3) Adding prefixes and suffixes, and additional rules:
 - a. Adding the particle (inflection suffix) “-pun” to the list of suffixes to be stemmed.
 - b. For the prefix type “te-”, we have added a new condition (Rule 35) in Table 2.3.
 - c. For the prefix type “-pe”, Rule 36 in Table 2.3 was added so that words such as “pekerja” <worker> and “peserta” <member> are stemmed correctly to “kerja” <to work> and “serta” <along with, as well as>, rather than not stemmed as the prefix is not recognized by Nazief and Adriani algorithm.
 - d. For the prefix type “me-“, Rule 12 was modified so that words such as “mempengaruhi” <to influence> can be stemmed correctly “pengaruh” <influence> instead of not successfully stemmed.
 - e. Rule 16 was modified for the prefix type “me-“, so that the word “mengkritik” <to criticize> can be stemmed correctly to “kritik” <critics>.
- 4) Adjusting the precedence rule.
 - a. If a word is prefixed with “be-” and suffixed with the inflection suffix “-lah”, try to remove prefix before the suffix.
 - b. If a word is prefixed with “be-” and suffixed with the derivation suffix “-an”, try to remove prefix before the suffix.

- c. If a word is prefixed with “me-” and suffixed with the derivation suffix “-i”, try to remove the prefix before the suffix.
- d. If a word is prefixed with “di-” and suffixed with the derivation suffix “-i”, try to remove the prefix before the suffix.
- e. If a word is prefixed with “pe-” and suffixed with the derivation suffix “-i”, try to remove prefix before the suffix.

However, there are some failures made by confix stripping stemmer. Arifin, Mahendra, & Ciptaningtyas (2017) improved it to be an algorithm called Enhanced Confix Stripping Stemmer. The modified algorithm is elaborated as follows:

- 1) Modifying some rules on Table 2.2 so that stemming process on words with construction of “mem+p...”, “men+s...”, “menge+...”, “penge+...”, and “peng+k...” can be done. The modified rules are as follows:

Table 2.4 Modified Rules by Enhanced Confix Stripping Stemmer Algorithm

Rules	Construct	Return
14	men{c d j s z}...	men-{c d j s z}...
17	mengV...	meng-V... meng-kV... (menV-... if V='e')
19	mempA...	mem-pA... where A!='e'
29	pengC...	peng-C...
30	pengV	peng-V... peng-kV ... (pengV-... if V='e')

- 2) Adding new stemming step to solve the suffix removal problem. The processes in that new stemming step are:
 - a. Return all the prefixes that have been removed in the last process so that the word model become: [DP+[DP+[DP]]] + Root word. Then the prefix removal is attempted. If the word is found in dictionary lookup, then the process stops. Otherwise, the next step is executed.
 - b. Return the suffix that have been removed. It starts from DS (“-i”, “-kan”, “-an”) if it exists, then followed by PP(“-ku”, “-mu”, “-nya”), and the last is P (“-lah”, “-kah”, “-tah”, “-pun”). On each returning, step 3) to 5) below is attempted. Special case for DS “-kan”, character “k” is restored first and step 3) to 5) is executed. If it still failed, then “an” is restored.
 - c. Prefix removal is performed according to rules defined in Table 2.2.
 - d. Recoding is performed

- e. If dictionary lookup fails, then return the word to its pre-recoding form and return all the prefixes that have been removed

Furthermore, enhanced confix stripping stemmer was improved to be modified confix stripping stemmer (Tahitoe & Purwitasari, 2010). The modifications of that algorithm are:

- 1) Infixes. Infixes in Bahasa Indonesia are “-er-“, “-el-“, “-em-“, and “in”. The previous rule only recognizes prefixes and suffixes. Therefore, this algorithm added new rule for infixes reduction. The process is done after reduction process of prefixes and suffixes.
- 2) Modifying rule number 18 and 31 on Table 2.2.
- 3) Compound word. If no root word is found on the root word dictionary after the prefix and suffix process is completed, then the word stemming process is repeated once again. But the process is done by checking the existence of the compound word.
- 4) Suffixes from foreign language. The example of suffices from foreign language are: “-wan”, “-wati”, “-is”, “isme”, and “-isasi”
- 5) Name of people and place, over stemming and under stemming. In order to overcome overstemming and understemming problem, stemming process based on corpus can be used. The algorithm will select one of the stemming result probabilities that has the biggest EM score.

3. Document-Term Matrix (DTM)

The next pre-processing step is creating Document-Term Matrix, which is a rectangular array with rows representing documents, columns representing terms, and the (i, j) elements representing the count occurrences of the j th term (column) in the i th document (row). It can be flipped into Term-Document Matrix where rows and columns represent terms and documents, respectively (Imai, 2017).

DTM is a sparse matrix, which means that most of its entries are zero because most terms appear in only a small number of documents (Imai, 2017). Suppose there are m terms and n documents, the structure of DTM is as follows:

Table 2.5 Document-Term Matrix

Docs	Term				
	Term 1	Term 2	Term 3	...	Term m
1	a_{11}	a_{12}	a_{13}	...	a_{1m}
2	a_{21}	a_{22}	a_{23}	...	a_{2m}
3	a_{31}	a_{32}	a_{33}	...	a_{3m}
4	a_{41}	a_{42}	a_{43}	...	a_{4m}
5	a_{51}	a_{52}	a_{53}	...	a_{5m}
\vdots	\vdots	\vdots	\vdots	\ddots	\vdots
n	a_{n1}	a_{n2}	a_{n3}	...	a_{nm}

where:

a_{nm} is the count occurrences of the j th term in the i th document

$i = 1, 2, \dots, n$

$j = 1, 2, \dots, m$

4. Term Frequency-Inverse Document Frequency (TF-IDF)

Term Frequency-Inverse Document Frequency (TF-IDF) is intended to measure how important a word is to a document in a collection (or corpus) of documents. It is a rule-of-thumb or heuristic quantity; while it has proved useful in text mining, search engines, etc., its theoretical foundations are considered less than firm by information theory experts (Silge & Robinson, 2018). Term Frequency (TF) summarizes how often a given word appears in a document. Inverse Document Frequency (IDF) downscales words that appear a lot across documents (Brownlee, 2017).

TF-IDF is used to weight the text-based features that are extracted by breaking down the documents into single words, terms composed of two words, and terms composed of three words. TF-IDF value is obtained by multiplying the value of the Term-Frequency value by the value of Inverse Document-Frequency (Alessa & Faezipour, 2018).

$$TF - IDF(t, d) = TF(t, d) \times IDF(t) \quad (2.4)$$

$$TF(t, d) = \frac{n_t}{n} \quad (2.5)$$

$$IDF(t) = \frac{N_d}{N} \quad (2.6)$$

where:

n_t is the number of times term t appears in a document.

n is total number of terms in the document.

N_d is the number of document that have term t .

N is the total number of documents.

5. Feature Extraction

Feature extraction used in this research is Latent Dirichlet Allocation (LDA). LDA is a probabilistic topic model to discover latent topics from documents and describe each document with a probability distribution over the discovered topics. It groups some words on different topics so that a document can be mapped to a lower dimensional space (Wang, Ma, & Zhang, 2016). The basic idea of LDA is that documents are represented as random mixtures over latent topics where each topic is characterized by a distribution over words (Blei, Ng, & Jordan, 2003).

The objective of LDA is to discover short descriptions while keeping the essential of statistical dependences to facilitate efficient processing of the data (Christou, 2015). LDA can be used as feature selection which gives better clustering results (Drummond, Vagena, & Jermaine, 2013). LDA assumes that each document of the collection exhibits multiple topics with the topic probabilities providing an explicit representation of the corpus. Moreover, it also assumes that all documents share the same set of topics, but each document exhibits those topics with different proportion (Christou, 2015).

The terms and variables in LDA model are (Blei, Ng, & Jordan, 2003):

1. A word is the basic unit of discrete data, defined to be an item from a vocabulary indexed by $\{1, \dots, V\}$. The words are represented by using unit-basis vectors that have a single component equal to one and all other components equal to zero. Superscripts are used to denote components. The v th word in the vocabulary is represented by a V -vector w such that $w^v = 1$ and $w^u = 0$ for $u \neq v$.
2. A document is a sequence of N words denoted by $w = (w_1, w_2, \dots, w_N)$, where w_n is the n th word in the sequence.
3. A corpus is a collection of M documents denoted by $D = \{w_1, w_2, \dots, w_M\}$.
4. α is dirichlet prior for θ . It is a collection of all α_k which is prior weight of topic k in a document.
5. β is dirichlet prior for ϕ . It is a collection of all β_w which is prior weight of word w in a topic.

6. ϕ_k is word distribution in topics
7. θ_d is probability of topic k in document d
8. $z_{d,j}$ is identify topic of word w in document d
9. $w_{d,j}$ is identify of word w in document d

Below is the generative process for each document \mathbf{w} in a corpus D (Blei, Ng, & Jordan, 2003 in Campbell, Hindle, & Stroulia (2015)):

1. For every topic $k \in \{1, \dots, K\}$:
 - a) Choose $\vec{\phi}_k \sim \text{Dirichlet}(\beta)$
2. For every document $d \in \{1, \dots, M\}$:
 - a) Choose $\vec{\theta}_d \sim \text{Dirichlet}(\alpha)$.
 - b) For every word $j \in 1, \dots, N_d$ in document d :
 - i. Choose a topic $z_{d,j} \sim \text{multinomial}(\vec{\theta}_d)$
 - ii. Choose a word $w_{d,j} \sim \text{multinomial}(\vec{\phi}_{z_{d,j}})$

Thus, probability of a topic k generating a word v at a position j in a document d is $p(w_{d,j} = v | \alpha, \beta, K)$ (Campbell, Hindle, & Stroulia, 2015):

$$\int_{\Theta} \sum_{k=1}^K \int_{\Phi} p(w_{d,j} = v | \vec{\phi}_k) p(z_{d,j} = k | \vec{\theta}_d) p(\vec{\theta}_d | \beta) p(\vec{\theta}_d | \alpha) d\vec{\phi}_k d\vec{\theta}_d \quad (2.7)$$

integrating over all possible probability vectors of length K (Θ) and of length $V(\Phi)$.

The goal of LDA software is to maximize the probability

$$p(\theta, Z | W, \alpha, \beta, K) \quad (2.8)$$

by choosing θ and Z given a corpus W and parameters α and β . However, that model is intractable, so the θ and ϕ that maximize the above probability are estimated by LDA software (Campbell, Hindle, & Stroulia, 2015).

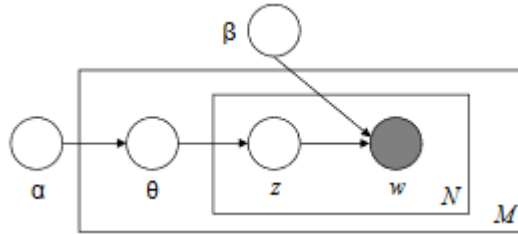


Figure 2.1 Graphical model representation of LDA.

Figure 2.1 is LDA model which is represented as a probabilistic graphical model. The boxes represent replicates. The outer plate represents documents, while the inner plate represents the repeated choice of topics and words within a document.

There are three levels to the LDA representation. The parameters α and β are corpus-level parameters, assumed to be sampled once in the process of generating corpus. The variables θ_d are document-level variables, sampled once per document. The variables z_{dn} and w_{dn} are word-level variables which are sampled once for each word in each document (Blei, Ng, & Jordan, 2003).

2.2 Text Clustering

2.2.1 Definition of Text Clustering

Clustering is an unsupervised process through which object is classified called clusters. Clustering is useful in a wide range of data analysis fields, including data mining, document retrieval, image segmentation, and pattern classification. The clustering method is appropriate when the prior information about the data is little, but the decision maker must make a few assumptions about the data as soon as possible. In text mining, the clustering of documents is based on the similarity of their content to get the effectiveness (Feldman & Sanger, 2007).

2.2.2 K-Means

K-Means algorithm is an algorithm for putting N data points in a dimensional space into K clusters. Each cluster is parameterized by a vector $\mathbf{m}^{(k)}$ called its mean. The data points are denoted by $\mathbf{x}^{(n)}$ where the superscript n runs from 1 to the number of data points N . Each vector \mathbf{x} has I components x_i (MacKay, 2005).

K-Means algorithm is started by initializing the K means $\{\mathbf{m}^{(k)}\}$ to random values. Then, in the assignment step, each data point n is assigned to the nearest mean. In the update step, the means are adjusted to match the sample means of the data points that they are responsible for. This algorithm always converges to a fixed point. The K-Means algorithm is as follows (MacKay, 2005):

1. Initialization. Set K means $\{\mathbf{m}^{(k)}\}$ to random values.
2. Assignment step. Each data point n is assigned to the nearest mean. Denote the guess for the cluster $k^{(n)}$ that the point $\mathbf{x}^{(n)}$ belongs to by $\hat{k}^{(n)}$.

$$\hat{k}^{(n)} = \underset{k}{\operatorname{argmin}} \{d(\mathbf{m}^{(k)}, \mathbf{x}^{(n)})\} \quad (2.9)$$

where:

$d(\mathbf{m}^{(k)}, \mathbf{x}^{(n)})$ is the Euclidean distance of the means $\mathbf{m}^{(k)}$ to the point $\mathbf{x}^{(n)}$ (Iezzi, 2012).

$$d(\mathbf{m}^{(k)}, \mathbf{x}^{(n)}) = (\mathbf{m}^{(k)} - \mathbf{x}^{(n)})^t (\mathbf{m}^{(k)} - \mathbf{x}^{(n)}) \quad (2.10)$$

An alternative, equivalent representation of this assignment of points to clusters is given by ‘responsibilities’, which are indicator variables $r_k^{(n)}$. In the assignment step, set $r_k^{(n)}$ to one if mean k is the closest mean to datapoint $\mathbf{x}^{(n)}$; otherwise $r_k^{(n)}$ is zero.

$$r_k^{(n)} = \begin{cases} 1 & \text{if } \hat{k}^{(n)} = k \\ 0 & \text{if } \hat{k}^{(n)} \neq k \end{cases} \quad (2.11)$$

If there are two means that have same distance from a data point, $\hat{k}^{(n)}$ is set to the smallest of the winning $\{k\}$.

3. Update step. The model parameters, the means, are adjusted to match the sample means of the data points that they are responsible for.

$$\mathbf{m}^{(k)} = \frac{\sum_n r_k^{(n)} \mathbf{x}^{(n)}}{R^{(k)}} \quad (2.12)$$

where $R^{(k)}$ is the total responsible of mean k ,

$$R^{(k)} = \sum_n r_k^{(n)} \quad (2.13)$$

If $R^{(k)} = 0$, then leave the mean $\mathbf{m}^{(k)}$ where it is.

4. Repeat the assignment step and update step until the assignments do not change.

2.2.3 Clustering Validation Measure

There are two types of clustering validation. The first one is external validations. It is a method of validation that compares the clustering result to a reference result. If the clustering result is similar to the reference, it is considered as a good clustering. Then, the second one is internal validation measure. It is a type of clustering evaluation that compares only with the result itself such as the structure of found clusters and their relations to each other (Hassani & Seidl, 2016). In this research, there is no previous information or references for the class. Therefore, this research used internal cluster validation.

1. Sum of Square Error (SSE)

The goal of partitional clustering strategy based on the SSE criterion is to obtain that partition which, for a fixed number of clusters, minimizes the square-error. Minimizing sum of square error or within cluster variation will be shown to be equivalent to maximizing the between-cluster variation (Jain & Dubes, 1988).

Suppose that the given set of n patterns in d dimensions has been partitioned into K clusters $\{C_1, C_2, \dots, C_K\}$ such that cluster C_K has n_k patterns and each pattern is in only one cluster, so that

$$\sum_{k=1}^K n_k = n \quad (2.14)$$

The mean vector, or center, of cluster C_k is defined as the centroid of the cluster, or

$$\mathbf{m}^{(k)} = \frac{1}{n_k} \sum_{i=1}^{n_k} \mathbf{x}_i^{(k)} \quad (2.15)$$

where $\mathbf{x}_i^{(k)}$ is the i th pattern belonging to cluster C_k . The square error for cluster C_k is the sum of the squared Euclidean distances between each pattern in C_k and its cluster center $\mathbf{m}^{(k)}$. The square-error is also called the within-cluster variation.

$$e_k^2 = \sum_{i=1}^{n_k} \left(\mathbf{x}_i^{(k)} - \mathbf{m}^{(k)} \right)^T \left(\mathbf{x}_i^{(k)} - \mathbf{m}^{(k)} \right) \quad (2.16)$$

The square-error for the entire clustering containing K clusters is the sum of square error of sum of the within-cluster variations:

$$E_k^2 = \sum_{k=1}^K e_k^2 \quad (2.17)$$

The objective of a sum of square error clustering method is to find a partition containing K clusters that minimizes SSE for fixed K . However, the sum of square error tends to decrease as the number of clusters increases and can be minimized only for a fixed number of clusters. So that it would be better to use different or additional criterion to choose the optimal number of clusters or validate the cluster results (Jain & Dubes, 1988).

2. Silhouette Coefficient

Silhouette coefficient is determined for each sample and a combination of its similarity to the data points in its own cluster and its dissimilarity to the data points not in its cluster. Therefore, for constructing silhouette the things that must be known are the partition (clustering result) and the collection of all proximities

between objects. The algorithm to define silhouette coefficient is (Rousseeuw, 1987):

- 1) Let define the numbers $s(i)$ in the case of dissimilarities. Take any object i in the data set and denote by A the cluster to which it has been assigned.

When cluster A contains other objects apart from i then compute

$$a(i) = \text{average dissimilarity of } i \text{ to all other objects of } A.$$

- 2) In Figure 2.1 this is the average length of all lines within A . Let consider any cluster C which is different from A , and compute

$$d(i, C) = \text{average dissimilarity of } i \text{ to all other objects of } C.$$

- 3) In Figure 2.1 this is the average length of all lines going from i to C . After computing $d(i, C)$ for all clusters $C \neq A$, select the smallest of those numbers and denote it by

$$b(i) = \min_{C \neq A} d(i, C) \quad (2.18)$$

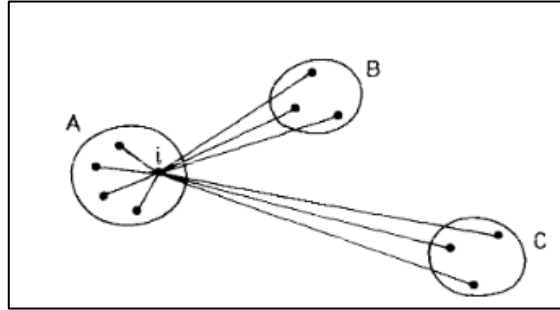


Figure 2.2 An illustration of the elements involved in the computation of $s(i)$, where the object i belongs to cluster A

The number $s(i)$ is obtained by combining $a(i)$ and $b(i)$ as follows:

$$s(i) = \begin{cases} 1 - \frac{a(i)}{b(i)} & \text{if } a(i) < b(i) \\ 0 & \text{if } a(i) = b(i) \\ \frac{b(i)}{a(i)} - 1 & \text{if } a(i) > b(i) \end{cases} \quad (2.19)$$

The formula is as follows:

$$s(i) = \frac{b(i) - a(i)}{\max\{a(i), b(i)\}} \quad (2.20)$$

From the formula above, $-1 \leq s(i) \leq 1$ for each object i .

If $s(i)$ is close to positive one, it means that the data is appropriately clustered. If $s(i)$ is close to negative one, it means that the data is not appropriately clustered. Then, if $s(i)$ is near zero, it means that the clusters of the data are unclear (Rousseeuw, 1987).

Calinski-Harabasz Index is an index using a ration between cluster means and a within-cluster sum of square. The formula is (de Amorim & Hennig, 2015):

$$CHI = \frac{\frac{T-E_k^2}{K-1}}{\frac{W_k}{N-K}} \quad (2.21)$$

where:

$$T = \sum_{t=1}^N \sum_{v \in V} (y_{iv} - \bar{y}_v)^2 \quad (2.22)$$

y_{iv} is the value of observation, $i = 1, 2, \dots, N$

E_k^2 is defined as in (2.17)

N is the number of observations

K is the number of clusters

This index become popular since it is a winner in the classical comparative study in (Milligan & Cooper, 1985) . So that, this research used CHI as the main index to validate clustering result and determine the optimal number of clusters.

2.3 Word Cloud

Word cloud is simple, well-known, and effective way to visualize text. The main goal of word cloud is to extract the most frequent word and show them together with the size of each word in relation to its frequency. It is used to find the most important terms in the text. The example of word cloud is (Bird, Manzies, & Zimmermann, 2015):



Figure 2.3 An example of word cloud

Figure 2.3 shows that word cloud can provide a concise and fun way to summarize the content of the text. Word cloud is useful to understand and track major content efficiently on semantic clustering. It is because the users do not have to examine all words one by one, but they can easily look at word clusters. (Cui, et al., 2010)

2.4 Media Center Surabaya

Media Center Surabaya is the government program which is created to accommodate public aspirations, such as complaints, information, or suggestion about the development of Surabaya city. Moreover, Media Center Surabaya is an access to facilitate the need of people in Surabaya and become communication access between the government and citizen on Surabaya development. It was launched in 28 November 2011 (Dinas Komunikasi dan Informatika, 2012).

After sending the aspirations through Media Center Surabaya, the aspirations will be sent to related government department. Then, the government will reply or give confirmation from the department to the citizen after 1x24 hours through the same access that they used. The accesses of Media Center are (Dinas Komunikasi dan Informatika, 2012):

1. Twitter (@SapawargaSby),
2. Facebook page (Sapawarga Kota Surabaya)
3. Email (mediacenter@surabaya.go.id)
4. Walk-in service
5. Call center (031-5456290)
6. Toll Free (0800-1404-122)
7. Fax (031-5463435)
8. SMS (0812-3025-7000)
9. Newspaper
10. Instagram (@sapawarga)
11. Website (mediacenter.surabaya.go.id) or mobile application (E-Wadul).

Every aspiration that were sent to the website (mediacenter.surabaya.go.id) will also be appeared in the mobile application, called E-Wadul. It is a mobile application which was made for people to make any aspirations about Surabaya

easily since most of the people using smartphone. People also can upload photos and the location related to the aspirations (Perdana, 2016).

E-Wadul service is good enough although there are still shortcomings in the field of service. Moreover, not all the people of Surabaya can access the application. To overcome this problem, Department of Communications and Informatics Surabaya tries to improve service in both the field of service and internet connection (Pura, 2017).

2.5 Previous Works

Previous works that are related to this research are:

1. Dhini, Hardaya, Surjandari, & Hardono (2017)

The title of the research by Dhini, Hardaya, Surjandari, & Hardono (2017) was “Clustering and Visualization of Community Complaints and Proposals using Text Mining and Geographic Information System”. The goal of that research was to perform text clustering to obtain the specific topics of community reports and to visualize the intensity of each topic in the urban area. That research used Self-Organizing Maps to cluster the public complaints, then the clustering results were visualized by using Geographic Information System. The result showed that the majority of public complaints and proposals are associated with drainage and roadwork.

2. Wang, Ma, & Zhang (2016)

The title of the research by Wang, Ma, & Zhang (2016) was “A Hybrid Document Feature Extraction Method Using Latent Dirichlet Allocation and Word2Vec”. The goal of that research was to propose a new hybrid approach to extract features from documents with bag-of-words in a semantic space. That research used both Word2Vec and Latent Dirichlet Allocation to integrate the contextual relationship among words. The result indicated that document features generated by their hybrid method are useful to improve classification performance by consolidating global and local relationship.

3. Ghazizadeh, McDonald, & Lee (2014)

The title of the research by Ghazizadeh, McDonald, & Lee (2014) was “Text Mining to Decipher Free-Response Consumer Complaints: Insight From the

NHTSA Vehicle Owner's Complaint Database". The goal of that research was to extract clusters of vehicle problems and associated trends from free-response data in the National Highway Traffic Safety Administration's vehicle owner's complaint database. That research used Latent Semantic Analysis (LSA) and hierarchical clustering to identify clusters of complaints for each severity level. The result showed that there were eight clusters of fatal incidents and six clusters of incidents involving injury.

4. Drummond, Vagena, & Jermaine (2013)

The title of the research by Drummond, Vagena, & Jermaine (2013) was "Topic Models for Feature Selection in Document Clustering". The goal of that research was to investigate the idea of using a topic model such as Latent Dirichlet Allocation (LDA) as a feature selection step for document clustering. That research used LDA as feature selection method. The result proposed two variant topic models that are designed to do a better job of producing topic mixing proportions that have a good clustering structure.

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CHAPTER III

RESEARCH METHODOLOGY

3.1 Data Source

The data used in this research was the opinion of Surabaya citizen published on the Media Center Surabaya website from 1st December 2015 to 31st August 2017. The data were collected from Department of Communication and Informatics Surabaya. The total of documents is 4206 documents.

The opinions published on Media Center Surabaya website is a set of opinions including other media center access, such as Twitter (@SapawargaSby), Facebook page (Sapawarga Kota Surabaya), email (mediacenter@surabaya.go.id), walk-in service, call center, SMS, newspaper, Instagram, website (mediacenter.surabaya.go.id) or mobile application (E-Wadul). The opinion can be delivered as complaint, critic, suggestion, question, or appreciation to the government.

3.2 Step of the Research

This research was done systematically through some steps. They are collecting the data, preprocessing data, constructing Document-Term Matrix and TF-IDF, feature extracting, clustering, and visualizing.

1. Collecting the data

Data were collected from Department of Communication and Informatics Surabaya. There are 29 variables in the data. The variables are as follows:

Table 3.1 Variables in the Data

No	Variables	Description
1	Opinion ID	ID number of the opinion detail
2	Opinion	The opinion detail
3	Media	Media used to deliver the opinion
4	Name	Name of the complainant
5	Telephone	Telephone number of the complainant
6	Address	Address of the complainant
7	Gender	Gender of the complainant
8	DOB	Date of birth of the complainant

Table 3.1 Variables in the Data (Continue)

No	Variables	Description
9	Status	Status of the opinion. There are 6 categories of status, such as: has not been answered, Media Center, SKPD, has been answered and planned, has been answered and followed up, has been answered and is following up.
10	Latitude	The latitude coordinate of the complainant
11	Longitude	The longitude coordinate of the complainant
12	Photo file name	File name of the uploaded photo
13	Photo content type	File type of the uploaded photo
14	Photo file size	File size of the uploaded photo
15	Photo updated at	Date and time of the photo being uploaded
16	Number of Ticket	Number of tickets
17	User ID	ID number of the complainant
18	Verified	Whether has been verified or not
19	Deleted	Whether has been deleted or not
20	Province	The province of the complainant
21	District	District of the complainant
22	Sub-district	Sub-district of the complainant
23	Village	Village of the complainant
24	Created at	Date and time when the opinion was created
25	Updated at	Date and time when the opinion was updated
26	Date and Time of Integration	Date and time when the opinion was integrated
27	Category	Category of the opinion (assigned by the administrator of Media Center Surabaya)
28	Topic	Topic of the opinion (assigned by the administrator of Media Center Surabaya)
29	Institution	The institution that are responsible for the opinion (assigned by the administrator of Media Center Surabaya)

2. Preprocessing Data

Preprocessing is needed before analyzing the data to reduce the noise in the data. In this research, preprocessing is divided into several steps. In this research, there are four options of pre-processing steps. They are:

- 1) Basic Cleaning and Operations
- 2) Stemming and Basic Cleaning and Operations
- 3) LDA and Basic Cleaning and Operations
- 4) Stemming, LDA, and Basic Cleaning and Operations

The explanation for each steps are shown below:

1) Basic Cleaning and Operations

This step consists in removing unimportant elements to provide only significant information. Basic operations to obtain clean documents are as follows:

- a. Removing newlines. In this step, newlines were removed from the document so that each document only have one line of sentences.
- b. Removing URL.
- c. Removing numbers. Any numbers in the document will be removed.
- d. Removing username. Some of the documents contain username mention. For example, @Sapawargasby, @e100, etc. It should be removed since it does not contain useful information in this research.
- e. Removing punctuation. Punctuations which were removed from the text are ! " # \$ % & \ ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { | } ~.
- f. Case folding. All the characters were converted into lower case.
- g. Removing stopwords. There are 852 stopwords that were used in this research. It consists of 758 stop words for Bahasa Indonesia obtained from Tala (2003) and 94 common words in the data. The stopwords used in this research are listed in Enclosure 1.
- h. Tokenizing. It is the process to parse the sentences into some single words.

2) Stemming. Stemming process for Bahasa Indonesia was done with Sastrawi package in Python.

3) Constructing Document-Term Matrix (DTM)

A document-term matrix consists of the frequency of terms that occur in the data. Rows describe the documents and columns correspond to terms. It is worthwhile in natural language processing as the input of the used method. Below is the matrix of DTM data structure as an input for the analysis:

Table 3.2 Document-Term Matrix of the Data

Docs	Terms								
	aamiin	aan	ab	abaca	abadi	abaikan	abang	...	update
1	0	0	0	0	0	0	0	...	0
2	0	0	0	0	0	0	0	...	0
3	0	0	0	0	0	0	0	...	0
4	0	0	0	0	0	0	0	...	0
5	0	0	0	0	0	0	0	...	0
6	0	0	0	0	0	0	0	...	0
7	0	0	0	0	0	0	0	...	0
8	0	0	0	0	0	0	0	...	0
9	0	0	0	0	0	0	0	...	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
4206	0	0	0	0	0	0	0	...	0

4) TF-IDF

TF-IDF weighting is utilized to weight the text that are already extracted from the documents. The text could be a word (unigram), two words (bigram), or three words. TF-IDF value is the multiplication of Term-Frequency value and the Inverse Document-Frequency value.

5) Feature Extracting by using Latent Dirichlet Allocation (LDA).

3. Clustering

Clustering method utilized in this research is K-Means. In addition, the optimum number of clusters are evaluated by using Silhouette Coefficient and Calinski-Harbasz Index. Those clustering evaluations were further used to compare cluster result between the trials to get the best pre-processing method and the optimal number of clusters.

4. Visualizing

After the clustering result was acquired, the members of each cluster were visualized by using word cloud. It is utilized to see the main topic of each cluster.

3.3 Framework

Below is the framework of the steps of this research

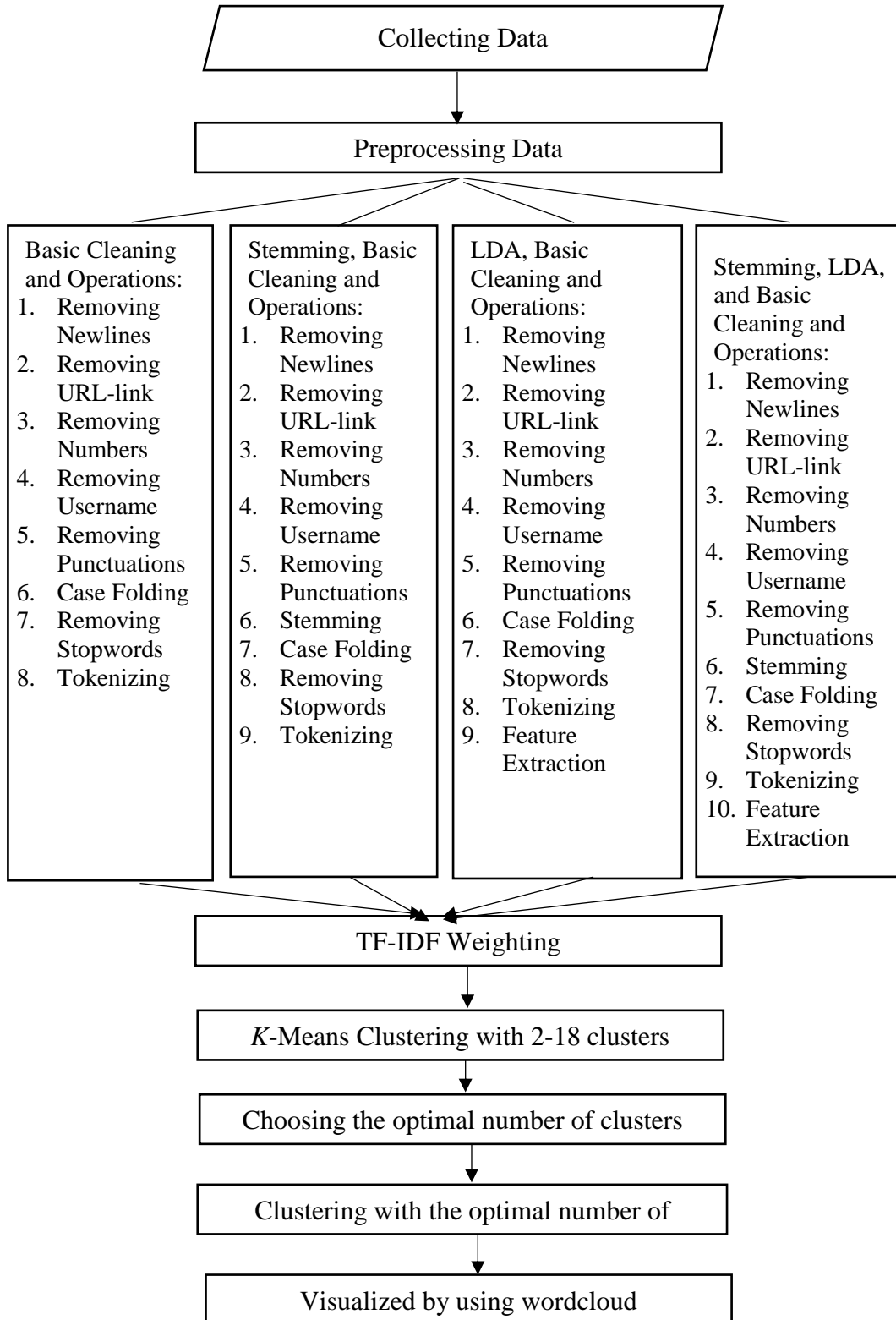


Figure 3.1 Framework

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CHAPTER IV

RESULTS AND DISCUSSION

4.1 Data Characteristics and Pre-processing

This sub-chapter provides the characteristic of dataset before and after pre-processing. The characteristic is about the number of most frequent terms in the dataset. Below is the graph of ten most frequent terms before pre-processing.

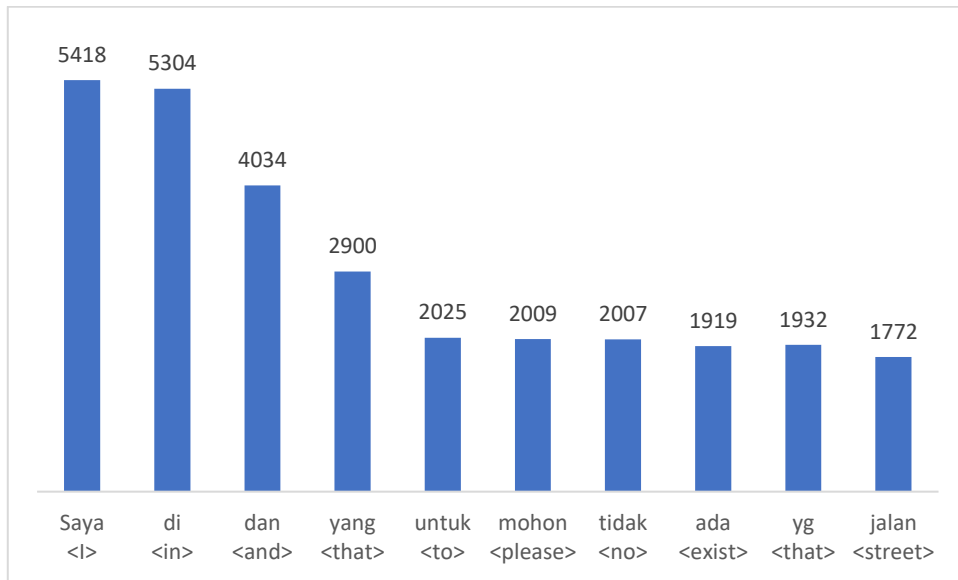


Figure 4.1 Ten Most Frequent Words Before Pre-processing

Figure 4.1 shows that ten most frequent words before pre-processing are “saya” <I>, “di” <in>, “and” <dan>, “yang” <that>, “untuk” <to>, “mohon” <please>, “tidak” <no>, “ada” <exist>, “yg” (short for “yang”) <that>, and “jalan” <street>. “Saya” <I> is the most frequent word in the data with the frequency of 5418. Then, the second and third most frequent words are “di” <in> and “dan” <and>, with the frequency respectively are 5304 and 4034. Furthermore, ten most frequent words are the common words which do not contain important information for analysis. They are considered as noise. It can be difficult to extract the information if the data contain noise. Therefore, the data need to be pre-processed by removing unimportant characters or words to get useful information.

The basic cleaning data that were done in this research are removing new lines, URL-link, numbers, username, punctuations, and stop words. After that, the basic operations were done such as case folding and tokenizing. Case folding is the

process to turn all the characters into lower case. Then, tokenizing is a process to pars the text into a word called token. The output example of each basic operation and cleaning processes is shown below.

Table 4.1 The Example of The Output of Pre-processing Data

Steps	Output
Before pre-processing	<u>Indonesian</u> @SapawargaSby saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat 58B ini sudah 6bulan keruh dan bau\ndibuat minum dan mencuci sangat susah.\nterimakasih
	<u>English</u> @SapawargaSby I want to inform that the condition of PDAM water in the area of simo pomahan baru 58B has been dirty and stinky for 6 months\nIt was difficult to drink and do the laundry with that water.\nthanks.
Removing newlines	<u>Indonesian</u> @SapawargaSby saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat gang 5 no 58B ini sudah 6bulan keruh dan bau dibuat minum dan mencuci sangat susah. terimakasih
	<u>English</u> @SapawargaSby I want to inform that the condition of PDAM water in the area of simo pomahan baru 58B has been dirty and stinky for 6 months It was difficult to drink and do the laundry with that water. thanks.
Removing URL-link	<u>Indonesian</u> @SapawargaSby saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat gang 5 no 58B ini sudah 6bulan keruh dan bau dibuat minum dan mencuci sangat susah. terimakasih
	<u>English</u> @SapawargaSby I want to inform that the condition of PDAM water in the area of simo pomahan baru 58B has been dirty and stinky for 6 months It was difficult to drink and do the laundry with that water. thanks.
Removing numbers	<u>Indonesian</u> @SapawargaSby saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat gang no B ini sudah bulan keruh dan bau dibuat minum dan mencuci sangat susah. terimakasih
	<u>English</u> @SapawargaSby I want to inform that the condition of PDAM water in the area of simo pomahan baru B has been dirty and stinky for months It was difficult to drink and do the laundry with that water. thanks.

Table 4.1 The Example of The Output of Pre-processing Data (Continue)

Steps	Output
Removing username (@username)	<u>Indonesian</u> <i>saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat gang no B ini sudah bulan keruh dan bau dibuat minum dan mencuci sangat susah. terimakasih</i>
	<u>English</u> I want to inform that the condition of water in the area of PDAM simo pomahan baru B has been dirty and stinky for months It was difficult to drink and do the laundry with that water. thanks.
Removing punctuations	<u>Indonesian</u> <i>saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat gang no B ini sudah bulan keruh dan bau dibuat minum dan mencuci sangat susah terimakasih</i>
	<u>English</u> I want to inform that the condition of water in the area of PDAM simo pomahan baru B has been dirty and stinky for months It was difficult to drink and do the laundry with that water thanks.
Case folding	<u>Indonesian</u> <i>saya ingin menginfokan kondisi air pdam daerah simo pomahan baru barat gang no b ini sudah bulan keruh dan bau dibuat minum dan mencuci sangat susah terimakasih</i>
	<u>English</u> i want to inform that the condition of water in the area of simo pomahan baru b has been dirty and stinky for months it was difficult to drink and do the laundry with that water thanks.
Tokenizing	<u>Indonesian</u> 'saya', 'ingin', 'menginfokan', 'kondisi', 'air', 'pdam', 'daerah', 'simo', 'pomahan', 'baru', 'barat', 'gang', 'no', 'b', 'ini', 'sudah', 'bulan', 'keruh', 'dan', 'bau', 'dibuat', 'minum', 'dan', 'mencuci', 'sangat', 'susah', 'terimakasih'
	<u>English</u> 'i', 'want', 'to', 'inform', 'that', 'the', 'condition', 'of', 'pdam', 'water', 'in', 'the', 'area', 'of', 'simo', 'pomahan', 'baru', 'b', 'has', 'been', 'dirty', 'and', 'stinky', 'for', 'months', 'it', 'was', 'difficult', 'to', 'drink', 'and', 'do', 'the', 'laundry', 'with', 'that', 'water', 'thanks'
Removing stop words	<u>Indonesian</u> 'menginfokan', 'kondisi', 'air', 'pdam', 'daerah', 'simo', 'pomahan', 'barat', 'gang', 'keruh', 'bau', 'minum', 'mencuci', 'susah', 'terimakasih'
	<u>English</u> 'inform', 'condition', 'pdam', 'water', 'area', 'simo', 'pomahan', 'barat', 'dirty', 'stinky', 'drink', 'laundry', 'difficult', 'thanks'

The newline is represented by “\n” character. Table 4.1 shows that after removing new lines process the character was removed and the sentences become in one line. The next process was removing URL-link. If there was no URL-link presented in the document, then the process was skipped. After that, the next process is removing numbers. Any numbers in the documents were removed. Table 4.1 shows that after removing numbers, the numbers were not existed.

Then, the next step is removing username. Some documents content username of the citizen. It is considered as an unimportant word of the data, so it should be removed to get clean data. Punctuations are also unwanted characters, so the next step is removing punctuations.

After that, the next step is case folding. The all characters were turned into lower case. Then, the text was parsed into smaller parts (single word) which is called token. Finally, the last step is removing stop words. It is a process of removing unimportant word to get useful information. After pre-processing, the number of terms were reduced. Below is the number of terms before and after pre-processing.

Table 4.2 The Number of Terms Before and After Removing Stopwords

Before basic cleaning and operation process	15564
After basic cleaning and operation process	13898

Table 4.2 shows that before pre-processing, the number of terms is 15564. Then, after pre-processing the number is reduced to 13898. It shows that 1666 terms were removed from the text. Among that terms, the ten most frequent terms in the data after pre-processing are presented below.

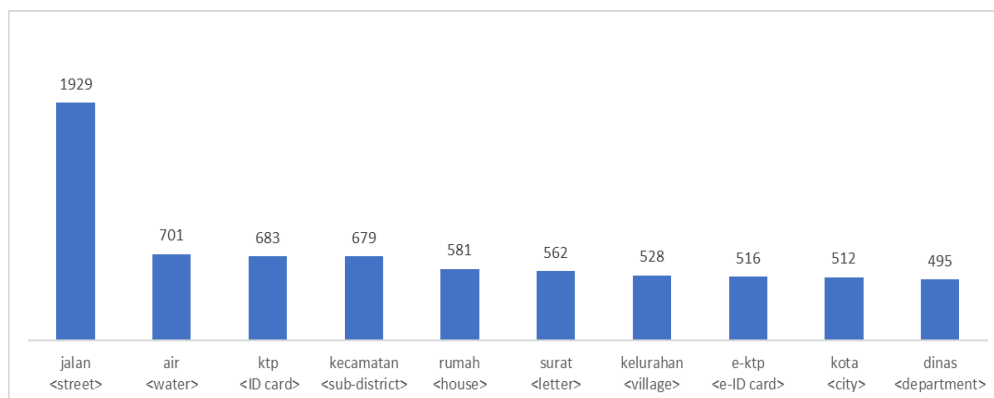


Figure 4.2 Ten Most Frequent Terms After Basic Cleaning and Operations

Figure 4.2 shows that ten most frequent words after removing stopwords are “jalan” <street>, “air” <water>, “ktp” <ID card>, “kecamatan” <sub-district>, “rumah” <house>, “surat” <letter>, “kelurahan” <village>, “e-ktp” <e-ID card>, “kota” <city>, and “dinas” <department>. “Jalan” <street> is the most frequent word after removing stopwords with the frequency of 1929. Furthermore, Figure 4.2 shows that ten most frequent words are the terms related to governance and infrastructure. It shows that stopword removal is useful to get important information.

After doing the basic cleaning and operations process, the next step is stemming. The number of terms is also affected by stemming process because the words were formed into their root words. Below is the number of before and after basic cleaning and operation process and stemming.

Table 4.3 The Number of Terms Before and After Removing Stopwords

Before basic cleaning and operation process	15564
After basic cleaning and operation process and stemming	10004

Table 4.3 shows that the number of terms before pre-processing is 15564, then after doing basic cleaning and operation process and stemming, the number of terms is reduced to 10004. It figures out there are 5560 terms that were removed and stemmed. Moreover, the ten most frequent terms after basic cleaning and operation and stemming process are as follows:

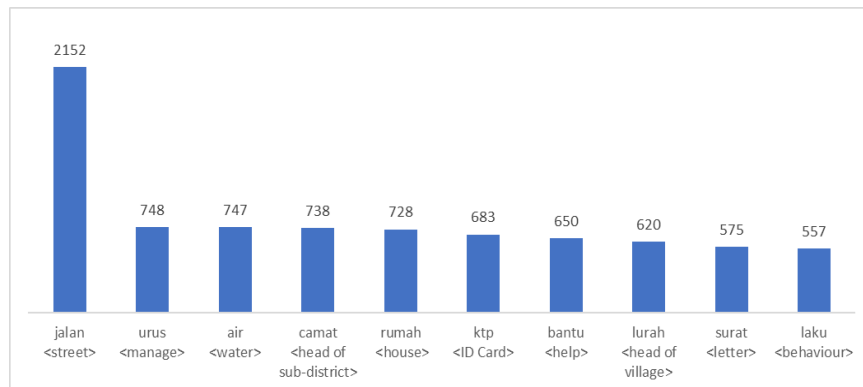


Figure 4.3 Ten Most Frequent Terms After Basic Cleaning and Operations and Stemming Process

Figure 4.3 shows that ten most frequent terms after basic cleaning and operations and stemming process are “jalan” <street>, “urus” <manage>, “air” <water>, “camat” <head of sub-district>, “rumah” <house>, “ktp” <ID card>, “bantu” <help>, “lurah” <head of village>, “surat” <letter>, “laku” <behavior>.

“Jalan” <street> is the most frequent word with the frequency of 2152. Mostly, the terms are about governance and infrastructure, such as “jalan” <street>, “air” <water>, “camat” <head of sub-district>, “rumah” <house> “ktp” <ID card>, “lurah” <head of village>, and “surat” <letter>. However, there are terms that are not related to it, such as “urus” <manage>, “bantu” <help>, and “laku” <behavior>.

After stemming, the next step is weighting the frequency of occurrences by using TF-IDF. The weighting is based on the word’s importance in the documents. The weighting results between stemming and no stemming are different. The results are presented in Enclosure D.

Then, feature extraction was done with LDA methods. The parameters of LDA used in this research are number of topics and number of terms. The number of topics is 15. The number of terms is determined by the frequency of terms after pre-processing. The terms used for LDA were the terms that have minimum 3 occurrences. If the term has frequency below 3, then the term is not included in the analysis. The number of terms used for feature extraction with stemming and no stemming process are:

Table 4.4 The number of words and terms for LDA process with stemming and no stemming

	No Stemming	Stemming
Number of terms	4319	3134
Number of words	87810	87574

Tabel 4.4 shows that the number of terms that have minimum 3 occurrences without stemming process is 4319. Then, the number of terms that have minimum 3 occurrences without stemming process is 3134. Those numbers have a slight difference. However, the difference of number of words between stemming and no stemming are not so different.

4.2 Clustering by Using *K*-Means

After the data were being pre-processed, clustering process was performed. The optimum number of clusters was determined by using *K*-Means clustering by calculating the Silhouette value and Calinski-Harabasz Index (CHI) of 2 until 18 clusters. Since this research compared two pre-processing steps, there are 4 clustering options in this research. The result for each option is explained below.

1. Clustering with pre-processing using basic cleaning and operations

After doing preprocessing with basic cleaning and operations, clustering process was done in this research. Clustering evaluation used in this research are silhouette coefficient and Calinski-Harabasz Index (CHI). The optimal number of clusters based on SSE value is the clustering that has small SSE. However, the greater number of clusters tend to have smaller SSE values so that SSE cannot be the only tools to evaluate clustering.

To get more clearly of how much the appropriate number of clusters are, silhouette coefficient and Calinski-Harabasz Index can be used. Below is the result of SSE, silhouette coefficient, and Calinski-Harabasz Index.

Table 4.5 Cluster Evaluation of Clustering with Basic Cleaning and Operations Process

Number of clusters	SSE	Silhouette Coefficient	Calinski-Harabasz Index
2	4119.237	0.006974	40.87308
3	4091.021	0.008235	35.06682
4	4065.86	0.009995	32.18493
5	4040.938	0.012473	30.75897
6	4027.025	0.012487	27.58852
7	4002.206	0.015058	27.46731
8	3990.582	0.014699	25.35334
9	3981.203	0.015142	23.46699
10	3964.161	0.015232	22.9485
11	3948.15	0.017802	22.43375
12	3941.716	0.01711	21.04508
13	3947.176	0.015098	18.77673
14	3919.923	0.019216	19.69053
15	3913.462	0.018365	18.80413
16	3911.446	0.018178	17.69938
17	3907.865	0.018365	16.84428
18	3895.334	0.018959	16.69312

Table 4.5 shows that 2 clusters have the biggest value of CHI. CHI was chosen to be the first clustering evaluation that used to determine the optimal number of clusters since it is a winner in the classical comparative study in (Milligan & Cooper, 1985). Regarding the CHI, it was concluded that the optimum number of clusters for this clustering is 2 clusters although its silhouette coefficient is not the greatest one.

2. Clustering with pre-processing using stemming and basic cleaning and operations.

The optimal number of clusters can be determined by using silhouette coefficient and Calinski-Harbasz Index. The most optimum clusters were determined by considering the highest silhouette value and CHI. Below is the result of silhouette coefficient and Calinski-Harbasz Index.

Table 4.6 Cluster Evaluation of Clustering with applying stemming but without LDA

Number of clusters	SSE	Silhouette coefficient	Calinski-Harbasz Index
2	4091.974	0.008497	50.06477
3	4057.549	0.009245	43.06814
4	4026.688	0.011671	39.66022
5	3994.839	0.014827	38.34838
6	3978.733	0.01569	34.19588
7	3946.643	0.018439	34.41168
8	3930.623	0.01877	32.05316
9	3912.525	0.019833	30.59631
10	3901.73	0.019845	28.55537
11	3891.647	0.021623	26.84721
12	3875.911	0.021922	26.04768
13	3874.807	0.019888	23.97777
14	3862.31	0.020156	23.24297
15	3846.891	0.018149	22.86403
16	3831.136	0.023682	22.57112
17	3822.927	0.022134	21.76299
18	3819.748	0.022935	20.69994

Table 4.6 shows that 2 clusters have the biggest value of CHI with the value of 50.06477. However, the biggest value of silhouette coefficient is 18. Regarding the CHI, it was concluded that the optimum number of clusters for this clustering is 2 clusters because the silhouette coefficient is near zero which means that the clustering results were not clear.

3. Clustering with pre-processing using LDA and basic cleaning and operations.

After doing preprocessing with LDA and basic cleaning and operations, clustering process was done. The appropriate number of clusters were determined by silhouette coefficient and Calinski-Harbasz Index. Below is the result of silhouette coefficient and Calinski-Harbasz Index.

Table 4.7 Cluster Evaluation of Clustering by applying LDA

Number of clusters	SSE	Silhouette Average	Calinski-Harbasz Index
2	1203.310706	0.144437057	572.2136666
3	1065.605141	0.170340571	594.5753493
4	926.7900137	0.218708796	665.4377601
5	840.7790509	0.235091234	657.4423326
6	758.8484112	0.263832435	673.2931886
7	686.3608114	0.288364958	694.0966688
8	619.3125181	0.311533454	724.1191818
9	547.5766796	0.335590203	785.1685838
10	499.9486023	0.349678766	808.6493349
11	446.3080269	0.369888461	865.4791706
12	403.3234922	0.384532819	911.0799369
13	368.3038329	0.397511398	947.5720509
14	348.2398022	0.401295127	943.4353565
15	318.8099517	0.411553038	984.3222694
16	308.8576202	0.385747148	957.0788149
17	299.069388	0.367920872	934.975528
18	293.1231661	0.347437014	902.6110794

Table 4.7 shows that 15 clusters have the biggest value of CHI and silhouette coefficient. The value of CHI for 15 clusters is 984.3222694 and the value of silhouette coefficient is 0.411553038. Regarding those values, it was concluded that the optimum number of clusters for this clustering is 15.

4. Clustering with pre-processing using Stemming, LDA, and basic cleaning and operations.

The optimal number of clusters can be determined by using silhouette coefficient and Calinski-Harbasz Index. The most optimum clusters were determined by considering the highest silhouette value and CHI. Below is the result of silhouette coefficient and Calinski-Harbasz Index.

Table 4.8 Cluster Evaluation of Clustering with applying stemming and LDA

Number of clusters	SSE	Silhouette average	Calinski-Harbasz Index
2	1175.286	0.169263868	661.9035494
3	1025.383	0.187543947	686.465632
4	871.0271	0.242493227	786.8297324
5	763.831	0.272363298	820.1737078
6	664.5711	0.308249573	879.4201815
7	606.1379	0.322122085	870.7730576
8	553.7152	0.33544137	873.6229937

Table 4.8 Cluster Evaluation of Clustering with applying stemming and LDA (continue)

Number of clusters	SSE	Silhouette average	Calinski-Harbasz Index
9	514.3817	0.345894326	862.7939854
10	474.429	0.359407367	870.5763951
11	439.5869	0.368746762	878.6696019
12	405.2065	0.378599302	898.7084426
13	376.1557	0.385260353	914.2142004
14	348.116	0.39368251	937.6184979
15	320.415	0.402898271	971.5708446
16	310.5648	0.376663221	944.1968703
17	299.2749	0.355434822	928.235072
18	289.8082	0.329411248	910.0023464

Table 4.8 shows that 15 clusters have the biggest value of CHI and silhouette coefficient. The value of CHI for 15 clusters is 971.5708446 and the value of silhouette coefficient is 0.402898271. Regarding those values, it was concluded that the optimum number of clusters for this clustering is 15.

After doing the *K*-Means clustering on each of the pre-processing options, the next step is determining which method that is suitable for visualizing to get better interpretation. The summary of those results is as below:

Table 4.9 The Summary of Clustering Results

Pre-processing	The optimal number of clusters	SSE	Silhouette coefficient	Calinski-Harbasz Index
Basic cleaning and operations	2	4119.24	0.006	40.873
Stemming and basic cleaning and operations	2	4091.97	0.008	50.064
LDA and basic cleaning and operations	15	318.81	0.411	984.322
Stemming, LDA, and basic cleaning operations	15	320.415	0.403	971.571

SSE, silhouette coefficient and CHI were used to determine the best method. Table 4.9 shows that clustering with LDA and basic cleaning and operations pre-processing has the lowest value of SSE and the greatest value of silhouette coefficient and CHI. It means that Clustering with LDA and basic cleaning and operations pre-processing was chosen to be the best method.

Table 4.9 also shows that pre-processing with stemming and no stemming do not have significant difference. However, by applying the LDA, the value of SSE is more decreased. Furthermore, the value of silhouette coefficient and CHI are increasing. It is because only important or frequent terms that were used for feature extraction using LDA.

4.3 Visualizing by Using Word Cloud

Regarding the clustering result in the previous sub-chapter, clustering with applying LDA as feature extraction was considered as the most optimum clustering method. Then, each cluster was visualized by using word cloud. The occurrence frequency of a word determines its size in word cloud. The greater the frequency, then the larger the size. The clusters obtained are:

1. Cluster 1

Word cloud of cluster 1 as in in Enclosure C.1 shows that cluster 1 was about sanitation in Surabaya city. As it can be seen that “jalan” <street> was the biggest word and “sampah” <garbage> was the second one. It means that in this cluster, people mostly talk about “jalan” <street> and “sampah” <garbage>. Then, followed by “saluran” <channel>, “air” <water>, “rumah” <house>, “banjir” <flood>, “sungai” <river>, “hujan” <rain>, “kebersihan” <sanitation>, and so on. Therefore, this cluster represents the problem of sanitation in Surabaya which can cause flood.

The accumulated garbage and drainage problem can cause flood during the rainy season. The expert of urban planning from Institut Teknologi Sepuluh Nopember said that the channel for drainage in Surabaya has been spread out but still has problems in its connections. The channel was not connected so the water was clogged, and the channel was overflowing where it is become an access to drain the water to the sea. Besides, the pipeline hygiene is also worth noting. The people of Surabaya still often throw garbage carelessly especially in the river flow, causing the channel and the flow of the river obstructed (Zahro, 2017a).

A lot of garbage clogs the stream so that during heavy rain, water cannot flow smoothly. To overcome these problems, Surabaya government made several efforts.

One of them is to clean the sewers or culverts and dredge the dirt in the river (Wiraraja, 2017).

2. Cluster 2

Word cloud of cluster 2 as in in Enclosure C.2 shows that “kota” <city> is the most word mentioned in cluster 2. It is followed by “jalan” <street>, “pemkot” <government of Surabaya city>, “dinas” <department>, “keluhan” <complaint>, “masyarakat” <citizen>, “walikota” <mayor>, “pemerintah” <government>, and so on. Those words show that this cluster is about the government.

Based on these words it can be seen that the citizen provides aspirations that can be in the form of complaints, suggestions, questions, criticisms, or appreciation to the Surabaya government. Not only in general to the government, but also be specific to the mayor. This is marked by the emergence of the word "mayor" <mayor> in that cluster.

3. Cluster 3

Word cloud of cluster 3 as in in Enclosure C.3 shows that “ktp” <ID card> was the biggest word. It means that people mostly talked about it. The word is followed by “kecamatan” <sub-district>, “dispenduk” <Department of Demographic and Civil Registration>, “ektp” <e-ID card>, “data” <data>, “surat” <letter>, “menunggu” <waiting>, “perekaman” <recording>, “cetak” <print>, “habis” <run out>, and so on. Therefore, this cluster represents the administration of ID Card.

The interpretation is in line with several articles discussing the issue of electronic ID card. In 2017 there were problems with electronic ID card printing. The form for making electronic ID card does not meet the needs of the Surabaya community (Aini, 2017). Then on April 17, 2017 Surabaya received ten thousand forms, but the public did not immediately apply for electronic ID card printing because the electronic ID card printing machine was in trouble (Jawa Pos, 2017).

Responding to this problem, the Surabaya City Government made an effort to overcome this electronic ID card problem. Department of Demographic and Civil Registration distributed electronic ID card printing machine to ten sub-districts to accelerate the printing, such as Gubeng, Kenjeran, Krembangan, Rungkut, Sawahan, Semampir, Simokerto, Tambaksari, Tandes, and Wonokromo. For sub-districts that

do not have printing equipment, they can submit a print application to Department of Demographic and Civil Registration (Jawa Pos, 2017)..

4. Cluster 4

Word cloud of cluster 4 as in in Enclosure C.4 shows that the topic of cluster 4 is about parking area. The biggest word in cluster 4 is “parkir” <parking>. It is followed by the word “jalan” <street>, “karcis” <ticket>, “liar” <illegal>, “pasar” <market>, “tarif” <fare>, “mobil” <car>, “motor” <motorcycle>, “trotoar” <pedestrian>, “uang” <money>, “bayar” <pay>, “resmi” <legal>, and so on.

Illegal parking areas are still scattered in several areas in Surabaya. Illegal parking can lead to traffic jams in crowded areas. This is because illegal parking takes the road and sidewalks. In addition, illegal parking also applies expensive fees. In order to overcome these problems, the government is controlling the illegal parking area that are crowded with vehicles. But there are still obstacles due to lack of personnel for policing (Effendi, 2017). Therefore, the government uses other rules by imposing parking zone in several places since March 20, 2017 (Dwi, 2017).

At the beginning of the regulation, only 10 areas became parking zone. Then in November 2017 it increased become 14 areas. Parking zone zones in Surabaya are in the area of Jembatan Merah, Tugu Pahlawan, Tunjungan, Blauran, Embong Malang, “Pasar Atom” <Atom Market>, “Taman Bungkul” <Bungkul Park>, “Balai Kota Surabaya” <Surabaya City Hall>, Kertajaya, Keputran, Mayjen Sungkono, “Kebun Binatang Surabaya” <Surabaya Zoo>, Nginden, and Rungkut. The existence of these regulations is expected to restore the function of the road such as the main road for vehicles (Kurniawan, 2017).

5. Cluster 5

Word cloud of cluster 5 as in in Enclosure C.5 shows that “rt (rukun tetangga)” <neighborhood association> was the biggest word. The word is followed by “rw (rukun warga)” <citizen association>, “pemkot” <government of the city>, “kelurahan” <village>, “bantuan” <help>, “kota” <city>, “program” <program>, “informasi” <information>, “kampung” <village>, “surat” <letter> and so on. Therefore, this cluster represents the administration and information at the neighborhood level.

6. Cluster 6

Word cloud of cluster 6 as in in Enclosure C.6 Figure 4.12 shows that the topic of cluster 4 is about streetlights. The biggest word in cluster 6 is “pju (penerangan jalan umum)” <streetlight>. It is followed by the word “lampu” <lamp>, “jalan” <street>, “mati” <turned off>, “padam” <die out>, “penerangan” <lighting>, “diperbaiki” <repaired>, “gelap” <dark>, and so on.

Based on those terms, it can be seen that many people report about the broken unfunctional street lights through Media Center Surabaya. This shows that the Media Center has become a place for public complaints regarding street lights. Before the the government launch Media Center, people made complaints through neighborhood association then forwarded to the sub-district or village officers. Then the sub-district officers will report to “DKP (Dinas Kebersihan dan Pertamanan)” <Department of Sanitation and Gardening> Surabaya. Another way is to contact the call center or through the official website (surabaya.go.id). Unfortunately, the citizen did not know the procedure since they did not know who the authorized institution in handling the problem is (Muiz, 2015).

However, nowadays the community can make complaints easier through the media center. The complaint will be sent directly to the relevant department so that it will be faster and easier in giving the complaint (Perdana, 2016).

7. Cluster 7

Word cloud of cluster 7 as in in Enclosure C.7 shows that the topic of cluster 4 is about main street. The biggest word in cluster 7 is “jalan” <street>. It is followed by the word “lampu” <lamp>, “jam” <hour>, “mobil” <car>, “macet” <traffic jam>, “arah” <direction>, “jembatan” <bridge>, “parkir” <parking>, and so on.

8. Cluster 8

Word cloud of cluster 8 as in in Enclosure C.8 shows that “blc (broadband learning center)” <Broadband Learning Center> was the biggest word. The word is followed by “kursus” <course>, “gratis” <free>, “daftar” <register>, “rumah” <house>, “pendaftaran” <registration>, “computer” <computer>, “pelatihan” <training>, “sertifikat” <certificate>, and so on. Therefore, this cluster is about BLC (Broadband Learning Center).

Broadband Learning Center is a free computer and internet learning training for Surabaya residents as a government effort to educate the public and encourage education system innovation. Until now the community is active in participating in training at BLC (suroboyod.id, 2016). Now there are 49 places for BLC training (BLC, 2018).

9. Cluster 9

Word cloud of cluster 9 as in in Enclosure C.9 shows that the topic of cluster 9 is about potholes. The biggest word in cluster 9 is “jalan” <street>. It is followed by the word “lubang” <holes>, “rusak” <damage>, “berlubang” <potholes>, “pengendara” <driver>, “diperbaiki” <repaired>, “membahayakan” <danger>, “motor” <motorcycle>, “perbaikan” <restoration>, and so on.

Based on these words it can be seen that many people complain about potholes. The potholes can endanger the driver. In December 2017, there were 200 potholes in Surabaya. The potholes occurred because it was time to repair the road or because the passing vehicle had exceeded the road strength capacity (Zahro, 2017b). Therefore, many people expect or suggest the government to repair the road.

10. Cluster 10

Word cloud of cluster 10 as in in Enclosure C.10 shows that “surat” <letter> was the biggest word. The word was followed by “kelurahan” <village>, “mengurus” <administer>, “ktp” <ID card>, “kk (kartu keluarga)” <family card>, “akta” <certificate>, “kecamatan” <sub-district>, “kelahiran” <birth>, and so on. Therefore, this cluster is about the administration letter for residency.

11. Cluster 11

Word cloud of cluster 11 as in in Enclosure C.11 shows that the topic of cluster 11 is about media center. The biggest word in cluster 11 is “keluhan” <complaint> and “center” <center>. It is followed by the word “media” <media>, “terimakasih” <thank you>, “terkait” <related to>, “kota” <city>, “tanggapan” <respond>, and so on.

Based on those words can be seen that the next topic is about Media Center Surabaya. It was initiated to accommodate community participation which could be a complaint, information, or suggestion on the development of Surabaya city.

Complaints made through Media Center will get a maximum response of 1x24 hours so that it will be more effective (Humas Menpanrb, 2015).

12. Cluster 12

Word cloud of cluster 12 as in in Enclosure C.12 shows that the topic of cluster 12 is about online service for administration. The biggest word in cluster 12 is “SIUP (Surat Izin Usaha Perdagangan)” <business licence>. It is followed by the word “SSW (Surabaya Single Window)” <Surabaya Single Window>, “TDP (Tanda Daftar Perusahaan)” <Certificate of Company Registration>, “online” <online>, “email” <email>, “berkas” <file>, “perpanjangan” <extension>, “perubahan” <modification>, and so on.

“SIUP (Surat Izin Usaha Perdagangan)” <business licence> and “TDP (Tanda Daftar Perusahaan)” <Certificate of Company Registration> can be administered by online in the website of Surabaya Single Window (SSW) (Hastareka, 2017). The website is managed by Department of Communication and Informatics Surabaya. The head of Department of Communication and Informatics Surabaya said that if the citizen were not satisfied with the online service, they can make complaint in Media Center Surabaya (Ardianto, 2017)

13. Cluster 13

Word cloud of cluster 13 as in in Enclosure C.13 shows that “sekolah” <school> was the biggest word. The word was followed by “anak” <children>, “pendidikan” <education>, “dinas” <department>, “bantuan” <help>, “kota” <city>, “guru” <teacher>, “biaya” <cost>, “SDN (Sekolah Dasar Negeri)” <public primary school>, “murid” <student> and so on. Therefore, this cluster represents education in Surabaya.

14. Cluster 14

Word cloud of cluster 14 as in in Enclosure C.14 shows that the topic of cluster 14 is about clean water distribution. The biggest word in cluster 14 is “air” <water>. It is followed by the word “pdam” <clean water company>, “mengalir” <flowing>, “daerah” <area>, “mati” <turned off>, “pipa” <pipe>, and so on.

15. Cluster 15

Word cloud of cluster 15 as in in Enclosure C.15 shows that “jam” <hour> was the biggest word. The word is followed by “petugas” <officers>, “pelayanan”

<service>, “puskesmas” <health center>, “pasien” <patient>, “antri” <queued>, “dokter” <doctor>, “imigrasi” <immigration>, “kelurahan” <village> and so on. Therefore, this cluster represents the officers service hour, especially for the health center officers.

The summary of cluster size are as follows:

Table 4.10 Number of Documents in Each Clusters

Cluster	Size	Topic
1	343	Sanitation in Surabaya
2	200	The Government
3	466	Administration of ID Card
4	242	Parking Area
5	229	Neighborhood Association
6	391	Streetlights
7	297	Main street
8	270	BLC
9	432	Potholes
10	332	Administration letter for residency
11	139	Media center
12	239	Online service for administration
13	189	Education in Surabaya
14	242	Clean water distribution
15	195	Service hour

Table 4.10 showed that cluster 3 has the greatest number of documents. There are 466 documents in cluster 3. It means the most topic that concerned by the people is ID Card. At it has been described that in 2017 there are some problems related to ID card. Furthermore, Table 4.10 also showed that there were many topics about street, such as parking area, streetlights, main street, and potholes. So, it means that mostly people also concerned about the street in Surabaya.

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CHAPTER V

CONCLUSION AND SUGGESTION

5.1 CONCLUSION

The conclusions of this research are:

1. The appropriate clustering procedure for this dataset is by using the pre-processing without applying stemming but implementing LDA as feature selection. The optimum number of clusters for the clustering is 14 clusters, which means there are 15 topics in the dataset.
2. The 15 topics most mentioned by Surabaya citizen were government service, trash, ID card, illegal parking area, government program and information., streetlights, street, computer training (BLC) by Surabaya government, potholes, administration letter, media center, online service for administration, education, clean water distribution, service hour by government.

5.2 SUGGESTION

The result demonstrated the information for the Surabaya government of which sector that citizen most concerned about. Mostly the topics were about the street problems, for instances a traffic jam, road construction, illegal parking area, street lights, and potholes. Thus, Surabaya government should improve the streets in Surabaya city.

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ENCLOSURE

Enclosure A Data

No	Aspirations
1	<p>saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat gang 5 no 58B ini sudah 6bulan keruh dan bau</p> <p>dibuat minum dan mencuci sangat susah</p> <p>terimakasih</p>
2	<p>Kepada Pemkot Surabaya setempat.</p> <p>Saya ingin melaporkan penuhnya sampah pada got di Simolawang Baru Sekolahan Gang II, hal ini menyebabkan saluran buntu hingga banjir pada saat hujan lebat, hal ini mohn segera di tangani. Terimakasih</p> <p>Robert Prayogo</p>
3	<p>Saya ingin melaporkan lampu pertamanan Jalan Kedung Sroko I Surabaya mati semua sebanyak 4 titik. Mohon untuk segera ditindaklanjuti. Terima kasih.</p>
4	<p>@e100ss sudah beberapa hari ini tumpukan sampah di sepanjang Jl. Banyu Urip bawah @SapawargaSby</p>
5	<p>@SapawargaSby mohon info apakah sdh ada keputusan soal sertifikasi tanah yg masih surat ijo. Terima kasih</p>
6	<p>@SapawargaSby Mohon kegiatan bakar ilalang segera ditertibkan khususnya wilayah Kelurahan Medokan Ayu. Lokasi di TPU Medokan Ayu.</p>
7	<p>selamat siang admin, saya mau menanyakan tentang perpanjangan perijinan warnet, saya coba masuk ke ssw surabaya, saya lihat di sana sudah tidak ada pilihan untuk perpanjangan perijinan warnet seperti beberapa tahun lalu, karena saya bingung saya mencoba untuk telepon ke dinas kominfo jl jimerto, saya coba menanyakan ke hal yg sama trus si penerima telepon bilang kalau perijinan online utk warnet memang sudah lama dihapus, lalu bagaimana kalau mau mengurus perpanjangan perijinan warnet, mohon infonya terima kasih</p>
8	<p>pagi min...cara ngurus surat keterangan bebas narkoba piye?</p>
⋮	⋮
4205	<p>Assalamu'alaikum.. Apa masih dibuka pendaftaran belajar komputer gratissss? Terimakasih</p>
4206	<p>Kalau masih SMP 2 apa boleh bapak/Ibu??? Terimakasih</p>

Enclosure B List of Stopwords

a	cukupkah	ingin	memperlihatkan	sampai	sini
ada	cukuplah	inginkah	mempersiapkan	sampaikan	sinilah
adalah	cuma	inginkan	mempersoalkan	sampai-sampai	soal
adanya	d	ini	mempertanyakan	sana	soalnya
adapun	dahulu	inikah	mempunyai	sangat	sore
admin	dalam	inilah	memulai	sangatlah	suatu
agak	dan	itu	memungkinkan	satu	sub
agakny	dapat	itukah	menaiki	saya	sudah
agar	dari	itulah	menambahkan	sayalah	sudahkah
akan	daripada	j	menandakan	sby	sudahlah
akankah	datang	jadi	menanti	sdh	supaya
akhir	dekat	jadilah	menantikan	se	surabaya
akhiri	demi	jadinya	menanti-nanti	sebab	sy
akhirnya	demikian	jangan	menanya	sebabnya	t
aku	demikianlah	jangankan	menanyi	sebagai	tadi
akulah	dengan	janganlah	menanyakan	sebagaimana	tadinya
amat	depan	jauh	mendapat	sebagainya	tahu
amatlah	dgn	jawab	mendapatkan	sebagian	tahun
anda	di	jawaban	mendatang	sebaik	tak
andalah	dia	jawabnya	mendatangi	sebaik-baiknya	tambah
antar	diakhiri	jelas	mendatangkan	sebaiknya	tambahnya
antara	diakhirinya	jelaskan	menegaskan	sebaliknya	tampak
antaranya	dialah	jelaslah	mengakhiri	sebanyak	tampaknya
apa	diantara	jelasnya	mengapa	sebegini	tandas
apaan	diantaranya	jika	mengatakan	sebegitu	tandasnya
apabila	diberi	jikalau	mengatakannya	sebelum	tanpa
apakah	diberikan	juga	mengenai	sebelumnya	tanya
apalagi	diberikannya	jumlah	mengerjakan	sebenarnya	tanyakan
apatah	dibuat	jumlahnya	mengetahui	seberapa	tanyanya
artinya	dibuatnya	justru	menggunakan	sebesar	tapi
asal	didapat	k	menghdap	sebetulnya	teg
asalkan	didatangkan	kala	menghendaki	sebisanya	tegasnya
assalamualaikum	digunakan	katau	mengibaratkan	sebuah	telah
atas	diibaratkan	kaulah	mengibaratkannya	sebut	tempat
atau	diibaratkannya	kalaupun	mengingat	sebutlah	tengah
ataukah	diingat	kalian	mengingatkan	sebutnya	tentang
ataupun	diingatkan	kami	menginginkan	secara	tentu
awal	diinginkan	kamilah	mengira	secukupnya	tentulah
awalnya	dijawab	kamu	mengucapkan	sedang	tentunya
b	dijelaskan	kamulah	mengucapkannya	sedangkan	tepat
bagai	dijelaskannya	kan	mengungkapkan	sedemikian	terakhir
bagaikan	dikarenakan	kan	menjadi	sedikit	terasa
bagaimana	dikatakan	kapankah	menjawab	sedikitnya	terbanyak
bagaimanakah	dikatakannya	kanpun	menjelaskan	seenaknya	terdahulu
bagaimanapun	dikerjakan	karena	menuju	segala	terdapat
bagi	diketahui	karenanya	menunjuk	segalanya	terdiri
bagian	diketuainya	kata	menunjuki	segera	terhadap
bahkan	dikira	katakan	menunjukkan	seharusnya	terhadapnya
bahwa	dilakukan	katakanlah	menunjuknya	sehingga	teringat
bahwasanya	dilalui	katanya	menurut	seingat	teringat-ingat
baik	dilihat	ke	menuturkan	sejak	terjadi
bakal	dimaksud	keadaan	menyampaikan	sejauh	terjadilah
bakalan	dimaksudkan	kebetulan	menyangkut	sejenak	terjadinya
balik	dimaksudkannya	kecil	menyatakan	sejumlah	terkira

banyak	dimaksudnya	kedua	menyebutkan	sekadar	terlalu
bapak	dimana	keduanya	menyeluruh	sekadarnya	terlebih
baru	dimanakah	keinginan	menyiapkan	sekali	terlihat
bawah	diminta	kelamaan	merasa	sekalian	termasuk
beberapa	dimintai	kelihatan	mereka	sekaligus	ternyata
begini	dimisalkan	kelihatannya	merekalah	sekali-kali	tersampaikan
beginian	dimulai	kelima	merupakan	sekalipun	tersebut
beginikah	dimulailah	keluar	meski	sekarang	tersebutlah
beginilah	dimulainya	kemaren	meskipun	sekarang	tertentu
begitu	dimungkinkan	kembali	meyakini	sekecil	tertuju
begitukah	dini	kemudian	meyakinkan	seketika	terus
begitulah	dipastikan	kemungkinan	min	sekiranya	terutama
begitupun	diperbuat	kemungkinannya	minta	sekitar	tetap
bekerja	diperbuatnya	kenapa	mirip	sekitarnya	tetapi
belakang	dipergunakan	kepada	misal	sekurang- kurangnya	tgl
belakangan	diperkirakan	kepadanya	misalkan	sekurangnya	th
belum	diperlihatkan	kesampaian	misalnya	sela	tiap
belumah	diperlukan	keseluruhan	mula	selain	tiba
benar	diperlukannya	keseluruhannya	mulai	selaku	tiba-tiba
benarkah	dipersoalkan	keterlaluan	mulailah	selalu	tidak
benarlah	dipertanyakan	ketika	mulanya	selama	tidakkah
berada	dipunyai	khususnya	mungkin	selama-lamanya	tidaklah
berakhir	diri	kini	mungkinkah	selamanya	tiga
berakhirlah	dirinya	kinilah	n	selamat	tinggi
berakhirnya	disampaikan	kira	nah	selanjutnya	toh
berapa	disebut	kira-kira	naik	seluruh	trus
berapakah	disebutkan	kiranya	namun	seluruhnya	tsb
berapalah	disebutkannya	kita	nanti	semacam	tunjuk
berapapun	disini	kitalah	nantinya	semakin	turut
berarti	disinilah	kok	ngga	semampu	tutur
berawal	ditambahkan	krn	nggak	semampunya	tuturnya
berbagai	ditandaskan	kurang	nmr	semasa	u
berdatangan	ditanya	l	nmr	semasih	ucap
beri	ditanyai	lagi	no	semata	ucapnya
berikan	ditanyakan	lagian	nya	semata-mata	ud
berikut	ditegaskan	lah	nyaris	semaunya	uda
berikutnya	ditujukan	lain	nyatanya	sementara	udah
berjumlah	ditunjuk	lainnya	o	semisal	udh
berkali-kali	ditunjuki	lalu	oleh	semisalnya	ujar
berkata	ditunjukkan	lama	olehnya	sempat	ujarnya
berkehendak	ditunjukkannya	lamanya	p	semua	umum
berkeinginan	ditunjuknya	lanjut	pada	semuanya	umumnya
berkenaan	dituturkan	lanjutnya	padahal	semula	ungkap
berlainan	dituturkannya	lebih	padanya	sendiri	ungkapnya
berlalu	diucapkan	lewat	pagi	sendirian	untuk
berlangsung	diucapkannya	lima	pak	sendirinya	usah
berlebihan	diungkapkan	luar	paling	seolah	usai
bermacam	dkt	m	panjang	seolah-olah	utk
bermacam-macam	dong	macam	pantas	seorang	v
bermaksud	dr	maka	para	sepanjang	w
bermula	dua	makanya	pasti	sepantasnya	waduh
bersama	dulu	makin	pastilah	sepantasnyalah	wah
bersama-sama	e	malah	pdhl	seperlunya	wahai
bersiap	empat	malahan	penting	seperti	waktu
bersiap-siap	enggak	malam	pentingnya	sepertinya	waktunya

bertahun	enggaknya	mampu	per	sepihak	walau
bertanya	entah	mampukah	percuma	sering	walaupun
bertanya-tanya	entahlah	mana	perlu	seringnya	warahmatullah
berturut	f	manakala	perlukah	serta	wong
berturut-turut	g	manalagi	perlunya	serupa	x
bertutur	ga	masa	pernah	sesaat	y
berujar	gak	masak	persoalan	sesama	ya
berupa	gitu	masalah	pertama	sesampai	yaitu
besar	guna	masalahnya	pertama-tama	sesegera	yakin
betul	gunakan	masih	pertanyaan	sesekali	yakni
betulkah	h	masihkah	pertanyakan	seseorang	yang
biasa	hal	masing	pihak	sesuatu	yg
biasanya	hampir	masing-masing	pihaknya	sesuatunya	yth
bila	hanya	mau	pukul	sesudah	z
bilakah	hanyalah	maupun	pula	sesudahnya	tdk
bisa	hari	melainkan	pun	setelah	risma
bisakah	harus	melakukan	punya	setempat	terima
boleh	haruslah	melalui	q	setengah	kasih
bolehkah	harusnya	melihat	r	seterusnya	brp
bolehlah	hendak	melihatnya	rasa	setiap	aja
bsa	hendaklah	memang	rasanya	setiba	sj
bu	hendaknya	memastikan	rata	setibanya	gmn
buat	hingga	memberi	rp	setidaknya	bikin
bukan	i	memberikan	rupanya	setidak-tidaknya	blm
bukankah	ia	membuat	s	setinggi	bgmn
bukanlah	ialah	memerlukan	saat	seusai	gimana
bukannya	ibarat	memihak	saatnya	sewaktu	jakarta
bulan	ibaratkan	meminta	saja	si	mohon
bung	ibaratnya	memintakan	sajalah	siang	jl
c	ibu	memisalkan	saling	siap	jln
cara	ikut	memperbuat	sama	siapa	tolong
caranya	ingat	mempergunakan	sama-sama	siapakah	maaf
cukup	ingat-ingat	memperkirakan	sambil	siapapun	warga

Enclosure C Terms

Enclosure C.2 Terms After Pre-processing with Basic Cleaning and Operations

[aamiin, aan, ab, abaca, abadi, abaikan, abang, abd, abdi, abdul, abg, abidin, abis, abonemen, abonmen, about, abs, absen, absensi, abu, abubakar, ac, acara, acaranya, acc, access, account, accurated, aceh, ach, achmad, acr, acra, actingnya, action, actionny, actionnya, acuan, acuh, akurat, ad, ada, adaa, adab, adain, adakah, adakan, adalag, adany, address, ade, adek, adfik, adha, adhitya, adhiwacana, adi, adihusada, adik, adil, adipura, aditya, adiwirakusuma, adja, adk, adkah, adl, adlah, adlh, adm, administrasi, administrasitrims, administratif, administration, adminjam, adminmedia, adminstrasi, adok, adri, adu, aduan, aduhkan, adukan, advertising, adzan, adzikra, ae, aedangkan, aehari, aerah, afandi, affan, afgani, afiat, afifah, ag, aga, agama, agen, agenda, ageng, agr, agraria, agrorkoteknologi, agst, agt, agts, agung, agunkan, agus, agust, agustiana, agustina, agustinus, agustono, agustus, ah, ahadah, ahass, ahead, ahir, ahli, ahliwaris, ahmad, ahok, aiesec, aini, ainur, air, airdas, airdi, airlangga, airny, airnya, airport, airpun, aisa, aisyah, aj, ajah, ajakan, ajaknapa, ajaln, ajang, ajar, ajaran, ajasih, ajb, ajbakta, aje, aji, ajuakan, ajudan, ajukan, akad, akal, akan, akar, akarnya, akarnyaa, akas, akasia, akbar, akeh, akeyla, akhir, akhire, akhirny, akhiry, akhmad, akhrny, akhrnya, akibat, akibatnya, akik, akirnya, akivitasnya, akn, akrab, akredetasi, akreditasi, akse, akses, aksesnya, aksesoris, aksi, akta, aktanyapun, akte, aktekelahiran, aktif, aktifasi, aktifasikan, aktifitas, aktifkan, aktivasi, aktivitas, aktivitasnya, aktofasi, aktvitas, akui, akun, akunnya, akurat, al, ala, alaihi, alaik, alaikum, alakadarnya, alam, alamat, alamate, alamatkan, alamatnya, alamatwonokromo, alami, alamt, alangkah, alasam, alasan, alasanannya, alasanny, alasannya, alasanya, alat, alatnya, albet, alen, alesannya, alexander, alexanders, alexandro, alfa, alfamart, alfamidi, alfons, alhamdulillah, alhamdulillaah, alhamdulillah, alhasil, alhidayah, ali, alias, alif, alih, alike, aliran, alirannya, aliri, alirkan, alit, aliyah, alkes, all, allah, alloh, alm, almamater, almarhum, almarhumah, almt, alokasi, along, alongside, alquran, alsn, alternatif, alumni, alun, alur, alurnya, alva, am, ama, amal, aman, amanah, amanat, amannya, amati, amazing, ambengan, ambil, ambilkan, ambilnya, ambing, ambingkan, ambip, amblas, ambles, ambless, ambrol, ambruk, ambulan, ambulance, ambulans, amburadul, amdal, amdalnya, amelijawati, america, amerta, ami, amiennn, amiiiiin, amiiin, amiiin, amiin, amilia, amin, amir, amiri, ampai, ampel, amphitheater, amplop, ampuh, ampun, amriyanto, an, ana, anak, anakbuahnya, anakkrn, anakku, anakmu, anaknya, anakx, analis, analisa, ananta, anarkis, ancaman, ancer, ancman, andai, andaikan, andaikata, andalkan, andayani, andhika, andi, andre, andri, andrian, andriant, andrie, android, andry, aneh, anehnya, angan, anggap, anggaran, anggarkan, anggota, angin, anginnya, angka, angkat, angkatan, angkot, angkota, angkuh, angkut, angkutan, angsuran, angutan, anikko, anindya, anjal, anjasmoro, anjing, anju, anjungan, anjuran, ank, anknya, annisah, anom, anrasumber, antarara, antariksa, antarkan, anti, antik, antre, antreannya, antri, antrian, antriannya, antrinya, antusias, anu, anugerah, anugrah, anugroho, anwar, anyar, anyu, anyway, aoakah, aopo, aora, ap, apa, apabiala, apain, apakah, apakh, apalah, apalgi, apalkah, apane, apanya, apapun, apar, aparat, aparatatur, apartemen, apartement, apatis, apatrm, apatw, apbd, apbn, apbnmasih, apdahal, ape, api, apkah, apkh, apkok, aplg, apli, aplikasi, aplikasinya, apotek, apotik, app, apply, approve, apresiasi, apresiasinya, april,

apriliyanto, aprilm, aq, aquarium, ar, arah, arahan, arahannya, arahan, arahnya, araya, arcomm, ardhani, ardhi, are, area, areal, arek, arena, ari, arief, arieni, aries, arif, arifianto, arin, aris, arisan, ariyanto, arjun, arjuna, arliansyah, armada, armadanya, arogan, arogannya, aroma, around, ars, arsip, arsipnya, arsitektur, art, artara, arti, artikel, arum, arus, arwan, arya, aryadevi, as, asa, asaberkah, asal, assalamualaikum, asalan, assallamuallaikum, asalnya, asap, asapnya, asas, asean, asem, asemrowo, aset, ashari, asi, asia, asing, asked, askes, asli, aslkm, aslm, asn, asongan, aspal, aspalan, aspalannya, aspalnya, aspek, aspirasi, aspirasinya, aspol, asrama, asri, ass, assalaamu, assalaamualaikum, assalam, assalammualaikum, assalammualaikum, assalamu, assalamuaalaikum, assalamuaalikum, assalamualaikumwrb, assalamualaikum, assalamualakum, assalamualikum, assalamuallaikum, assalamulaikum, assallamualaikum, assallamuallaikum, asskum, asslamualaikum, asslk, asslkm, asslm, asslmlkm, asslmualaikum, asswrb, astaga, astama, astra, astrowidjojo, astuti, asuh, asuhan, asumsi, asupan, asuransi, asusila, asyik, at, atai, atam, atao, atap, atapnya, atasan, atasannya, atasi, atasnya, atasperhatiannya, atauapalah, atensi, atensiny, athallah, athasya, atik, atitud, atkp, atlit, atm, atma, atmaja, ato, atom, atraksi, atraksinya, ats, attachment, atthar, attitude, atu, atum, atur, aturan, aturkan, atw, auberta, mudah, audensi, audiensi, auditorium, aulia, auliawan, auri, australia, austria, autofilm, available, avoor, awak, awalanya, awalul, awam, awan, awas, awet, away, awk, aws, axy, ayah, ayahanda, ayahnya, ayam, ayang, ayat, ayo, ayoberantas, ayolah, ayoo, ayu, ayun, azas, azza, azzuhratun, baai, baar, bab, bababatan, babak, babat, babatan, babinsa, babk, baby, baca, bacaan, backdated, background, backhoe, badai, badan, badsn, bag, bagaiman, bagaimn, bagaimna, bagamana, bagianmu, bagian, bagimana, bagong, bagsumda, bagus, bahak, bahan, bahannya, bahari, bahas, bahasa, bahasanya, bahaya, bahayanya, bahlan, bahrul, bahu, bahwa, bahwasannya, baik, baiki, baiklah, baiknya, baipas, baitul, baiya, baja, bajingan, bajir, baju, bak, bakan, bakar, bakerbangpol, bakery, bakesbang, bakesbangpol, bakespangpol, bakso, baksos, bakti, baku, bakwan, balai, balaikota, balap, balapan, balas, balasan, balasannya, balassan, bale, balek, bali, baliho, balik, balikan, balikin, baliknya, balita, baliwert, balkot, balok, balong, balongsari, balpem, bam, bambang, bambu, ban, banayk, band, banda, bandara, bandarejo, bandel, banding, bandingkan, bandung, bang, bangbang, banger, banget, bangga, banggakan, bangil, bangkalan, bangkingan, bangkit, bangkrut, bangsa, bangsal, bangun, bangunan, bangunsari, banjar, banjarmasin, banjarsugihan, banjir, banjirnya, banjirpun, bank, banner, banswie, bantal, bantaran, banteng, banter, bantu, bantuan, bantuannya, bantuanya, banya, banyakk, banyaknya, banyak, banyu, banyue, banyumas, banyune, banyurip, banyuurip, banyuwangi, bapak, bapaknya, bapakyg, bapemas, bappedda, bar, barang, barangkali, barangnya, barat, barata, baratajaya, bareng, barengan, baret, barier, baris, barisan, barometer, baru, baruk, barulah, barunya, barusan, basah, base, basem, basket, basmi, bass, basuki, bata, batago, batang, batangan, batas, batasan, batasi, batasnya, bathin, batik, batin, batu, batuannya, batuk, batunya, bau, bauar, baunya, bawa, bawaan, bawahan, bawahannya, bawahanya, bawahnya, bay, bayak, bayam, bayan, bayangkan, bayar, bayarannya, bayare, bayarkan, bayarnya, bayi, bayu, bazaar, bazar, bazarnya, bb, bbanyak, bbm, bbn, bbpjn, bbrp, bca, bdbek, bdh, bds, be, beacukai, bearti, beasiswa, beasiswakanpadahal, beasiswanya, berbagaimacam, beban, bebannya, bebarapa, bebarengan, bebas, bebaskan, bebek, bebelit, bebrp, becak, becaknya, becek, becus, beda, bedah, bedanta, been, begadang, begal,

begituan, bego, behind, bejat, beji, bekaitan, bekas, bekas, bekasnya, bekerja, bekingin, bekti, bel, belah, belahan, belain, belajar, belakangnya, belakanh, belanda, belangko, belangkonya, belangkox, belangsung, belanja, belas, belasan, belfast, beli, beliau, belikan, belinya, belit, beliunya, beljum, belli, belm, belok, belokan, belom, belubang, belumnya, belun, belur, bemar, bemo, bemotor, ben, benahi, benar, benarkan, benarnya, bencana, benchmark, benda, bendahara, bendel, bendera, bendul, bendungnya, bene, bener, benerbikin, bengawan, bengkel, bengkok, bengkulu, benhkong, beni, bening, bennee, benner, benowo, bensin, bentak, bentrok, bentuk, beoum, bepergian, ber, beraatt, beradap, beragam, beragama, berakibat, beraksi, beraktifitas, beraktivitas, beralamat, beralamatkan, beralasan, beralih, beralkohol, berambisi, beranda, berangkat, berangkat, berangkatlah, berangsur, berani, berantakan, berantas, berapaterus, beras, berasa, berasal, berasnya, berasumsi, berat, berati, beratnya, beraturan, beraty, berbadan, berbagi, berbahagia, berbahaya, baik, berbaju, berbakti, berbanding, berbasis, berbatasan, berbau, membayar, berbeban, berbeda, berbekal, berbelanja, berbelit, berbelok, berbenah, berbentuk, berbhaya, berbhs, berbicara, berbisnis, berbondong, berbuat, berbulan, berbunga, berbuntut, berbunyi, busa, bercampur, bercanda, berceceran, bercerai, bercerita, berciuman, berda, berdagang, berdampak, berdampingan, berdarah, berdasar, berdasarkan, berdaulat, berdaya, berdebat, berdebu, berdekatan, berderetan, berdiameter, berdinas, berdiri, berdirinya, berdiskusi, berdoa, berdomisili, berdua, berebut, beredar, berefek, berem, beremnya, berencana, beres, beresiko, beresselesai, beretikaapakah, beretikad, beretos, berexpired, berfokus, berfungsi, berfungsi, berfungsi, berfungsi, berfungsi, bergabung, berganti, bergantian, bergegas, bergelap, bergelembung, bergeletak, bergelombang, bergengsi, bergerak, bergerombol, bergeronjal, bergeser, bergotong, berguir, bergulir, berguna, bergunanya, berhadapan, berhadiah, berhak, berhalangan, berharap, berharga, berhari, berhasil, berhati, berhenti, berhentikan, berhijab, berhimpitan, berhub, berhubung, berhubungan, beribu, berijin, beriklan, berilah, berimbis, beringin, berinisial, berinisiatif, berinovasi, berinteraksi, berinvestasi, berisi, berisik, berisikan, berisiko, beristirahat, berita, beritahu, beritahukan, beritanya, berizin, berjaga, berjalan, berjalannya, berjam, berjamaah, berjanji, berjarak, berjatuh, berjauhan, berjejalan, berjejer, berjilbab, berjln, berjualan, berjubel, berjuluk, berkah, berkahnya, bekaitan, berkala, berkali, berkantor, berkarat, berkarya, berkas, berkasnya, berkat, berkatifitas, berkebun, berkedip, berkehidupan, berkelahi, berkelian, berkeliling, berkelok, berkeluarga, berkembang, berkenan, berkendara, berkepanjangan, berkepentingan, berkerja, berkerudung, berkesudahan, berkewajiban, berkicau, berkirim, berkk, berklarifikasi, berkolaborasi, berkompeten, berkonfir, berkonsultasi, berkontribusi, berkoordinasi, berkorban, berktp, berkualitas, berkuasa, berkuliah, berkulit, berkumpul, berkumpulnya, berkunjung, berkurang, berkurangnya, berkursi, berkutat, berkutu, berlagsung, berlaku, melakukan, berlakuknay, berlakunya, berlalu, berlama, berlanjut, berlantai, berlarian, berlarut, berlawanan, layar, berlebaran, lebih, berlgs, berlian, berlibang, berlimpah, berlobang, berlokasi, berloksasi, berlubang, berlubangnya, berlubangx, berlumpur, berm, bermain, bermanfaat, bermartabat, bermasalah, bermaslaah, bermaterai, bermesraan, bermimpi, berminat, berminggu, bermitra, bermobil, bermotor, bermuatan, bermukim, bermunculan, bermutu, bernafas, bernama, berniat, berniat, bernilai, bernomor, bernuansa, berobat,

berobatnya, beroda, berombongan, berompi, beroperasi, berorganisasi, berorientasi, berpacaran, berpapasan, berpartisipasi, berpatroli, berpaving, berpawakan, berpedoman, berpeluang, berpendapatan, berpendidikan, berpengalaman, berpengaruh, berpergian, berperilaku, berpihak, berpikir, berpindah, berpisah, berpotensi, berprestasi, berproduksi, berpuluh, berputar, bersabar, bersahabat, bersaing, bersalah, bersalaman, bersalin, bersamaan, bersanding, bersangkutan, bersantai, bersarang, bersatu, bersebelahan, bersebrangan, bersedekah, bersedia, bersekolah, berselang, berseliweran, bersenda, bersepakat, bersepatu, bersepeda, berseragam, berserakan, bersertifikasi, bersertifikat, bersempel, bersiapuntuk, bersifat, bersih, bersihin, bersihkan, bersikap, bersikeras, bersikukuh, bersinergi, bersinggungan, berstandart, berstatus, bersempel, bersuami, bersubsidi, bersumber, bersumpah, bersurat, bertanggung, bertahan, bertahap, bertahun, bertahun², bertakung, bertambah, bertambahnya, bertamu, bertanggung, bertanggungjawab, bertanya, bertanya, bertatap, bertebaran, berteduh, bertemakan, bertempat, bertemu, bertengkar, bertentangan, bertepatan, berterbangan, berteriak, berterima, berternak, bertgl, bertindak, bertingkat, bertonase, bertransportasi, bertugas, bertujuan, bertuliskan, bertumpu, berubah, berukuran, berulan, berulang, berulang kali, berumah, berumur, berunding, beruntun, beruntung, berupaya, berurutan, berusaha, berusia, bervariasi, berwajib, berwarna, berwenang, berwiraswata, berwirausaha, berwudhu, besa, besar, besaran, besarnya, beserta, besi, besinya, besok, best, bet, betapa, beterbangan, bethel, betis, beton, betonnya, better, betul, betulkan, betung, bg, bgaimana, bggung, bgi, bgini, bgitu, bgm, bgmana, bgmna, bgmnap, bgmpun, bgs, bgt, bgtu, bgtukah, bhabinkamtibmas, bhakti, bhineka, bhinneka, bhkan, bhkn, bhngt, bhwa, bhwa, bi, bia, biaggi, biang, biar, biara, biarin, biarkan, biawak, biaya, biayanya, bibi, bibir, bibis, bibit, bibliometric, bicara, bicarakan, bicaranya, bid, bida, bidan, bidang, bidik, big, bigimana, bigung, bijak, bijaksana, biji, bikang, bilamana, bilang, bilangin, bilanginya, biliton, bima, bimbingan, bina, binaan, binamarga, binanagun, binangun, binangunc, binatang, bincang, bing, binggung, bingung, bintang, bintoro, biodata, biometric, biometric, biometrik, biota, biro, birojasa, birokrasi, birokrasinya, biru, bis, bisa, bising, bismillaah, bismillah, bisnis, bisq, bissmillahirrohmanirohim, biyar, bj, bjn, bk, bkan, bkd, bkerja, bkia, bkm, bkn, bkntp, bkppm, bkr, bkrj, bkrja, bl, bla, blaass, blaik, blajar, blako, blanco, blangko, blangkonya, blank, blanko, blankonya, blanko², blas, blass, blauran, blc, blcnya, bleh, blg, blgnunggu, blgnya, blh, blik, blimbing, blkng, bln, blndan, blng, blnnya, blockvert, blok, blokir, blokiran, blokirnya, blokkk, blom, blos, blue, blum, blusukan, bmkg, bmp, bn, bnget, bngt, bngun, bni, bnr, bnsin, bntuan, bny, bnyak, bnyk, bobot, bobrok, bocor, bocoran, bodi, bodong, body, boechori, bogangin, bogi, bogokidul, bogor, bohong, bojonegoro, bok, bola, bolaang, bolak, bole, bolehdibuang, bolodewo, bolong, bolos, bolpen, bon, bonbin, bondong, boneka, bongkar, bongkaran, bongsor, bongsorjabon, bonnet, book, booking, bopda, boros, bos, bosan, bosem, bosnas, bosnya, boss, both, bottle, botol, botoputih, bottle, bottom, boulevard, box, boxcluver, boxculvert, boyo, bp, bpa, bpak, bpb, bphtb, bpip, bpjn, bpjs, bpk, bpkb, bpn, bpnt, bpom, bpsk, br, brainware, brand, brandal, brangkat, branjangan, brantas, brapa, brarti, brata, bratang, brati, bravo, bravoo, brawijaya, brbeda, brcerita, brg, brhenti, bri, briefing, brigjen, brimob, bringin, brjualan, brkas, brkenan, brlakunya, brnangkat, bromo, brong, bronggalan, brongjong, brpa, brpkoq, brselisih, brshkan, brsm, brsn, brtemu, brti, brtnya,

brtugas, bru, brusaha, bsar, bsatau, bsk, bslm, bsok, bsr, btn, btuh, btuhkn, bu, buah, buana, buang, buangan, buanyak, buatan, buatkan, buatkn, buaya, bubaran, bubarkan, bubuhkan, bubut, bubutan, budaya, buddha, budgeting, budi, budidaya, buesar, bug, bugdet, buih, build, building, built, bujang, buk, buka, bukit, bukk, bukkkk, bukti, buktikan, buktinya, buku, bulak, bulaksari, bulan, bulanan, bulanannya, bulang, bulannya, bulansebagai, bulat, bulevard, bulkculvert, bulog, bulu, bulunya, bumd, bumerang, bumi, bumiarjo, bumiputera, bumn, bunda, bundaran, bunderan, bunga, bunganya, bungkal, bungkul, bungkus, bunguran, bungurasih, buntaran, buntu, buntuan, bunyi, bunyinya, bupati, buram, burisma, burn, burning, bursa, buru, buruh, buruk, buruknya, burung, bus, busan, business, busnya, busoalnya, busuk, buta, butchart, butir, butu, butuh, butuhkan, butuhkn, butuhnya, buu, buuu, buuuuuuuuanyaaak, buuuu, buwat, buyaaar, bvd, bwa, bwh, bwm, bwt, bxclvrt, by, byar, byk, byr, byrnya, caamt, cab, cabang, cabangnya, cabe, cabut, cacat, cacing, cadangan, cafe, cagar, cahaya, cahyadi, cairan, cairnya, cak, call, calo, calon, calonya, calvert, camat, camatnya, campur, campurkan, campus, can, canada, candara, candi, candipuro, candra, cangkruk, cantian, cantik, cantikan, cantiknya, cantolan, cantum, cantumkan, cap, capek, capekk, capem, capil, capital, captcha, car, cara, carax, card, carefour, cargo, cari, carikan, carinya, carok, case, cat, catatan, catatannya, catatatan, cathalina, catin, catur, caturgraha, causing, cb, cbr, cc, cctv, ce, ceceran, cecilya, cedera, cek, cekkan, celah, celaka, celana, celesta, cellplan, cemas, cembung, cempaka, cempreng, cenderung, center, centerny, central, centre, cepak, cepat, cepatnya, cepek, cepekdi, cepeknya, cepet, cerah, cerai, ceramahinlah, cerewet, cerita, ceritakan, ceritanya, cermin, ceroboh, cerpen, ceta, cetak, cetakan, cetaknya, cewek, cfd, chaerul, chaisun, chance, chandra, channel, channelsnya, charge, chart, check, chek, chicken, choose, chorina, christian, chrome, chuluk, chusnul, cicil, cikapundung, cikarang, cikungunya, cikunguya, cilacap, cilik, ciliwang, cimanuk, cinta, cintai, ciprat, cipta, ciptakan, cipunegara, ciputra, circle, ciri, citanya, cities, citizens, cito, citra, citraland, city, ciwo, ckarang, ckp, clara, clean, cleaning, clear, club, cluster, cluvert, cm, cmn, cntoh, co, coba, cobalah, cobra, cocok, code, coklat, colek, collect, collection, colombo, colombu, com, come, comfirmasi, comm, command, communication, company, compared, competition, complain, computer, conditions, condong, conect, conference, congested, congratulate, connect, contact, contoh, contohktp, contohnya, control, convention, convex, cool, copet, copi, copy, cypypaste, cor, coran, corat, coret, coretan, corina, corner, cornya, corpus, council, country, cowek, cowok, cp, cpet, cpns, cpnya, cpt, cptra, cq, cr, crab, crane, crazy, cream, cri, critanya, cross, crowdid, cs, csr, ct, ctak, cuaca, cuci, cucu, cucunya, cukit, cukiup, culinary, cultural, culture, culvert, culvet, cuman, cumpat, cup, curhat, curhatan, currently, curvlet, customer, custumer, cuti, cutup, cuvlter, cv, cwu, cz, da, daanya, daapt, dada, dadakan, dadi, dadine, daeeah, daerah, daerahnya, daerahh, dafta, daftar, daftaran, daftarkan, daftarnya, dagang, dagangan, dagangannya, daging, dagunya, dahak, dahan, dahannya, dahanpohon, dahlan, dahulunya, dalan, dalanan, dam, damai, dambaan, damen, dampak, dampaknya, damri, dana, danakarya, dananya, danau, dance, dandani, dangdut, dangdutan, dangkal, danhdut, danmenertibkan, dann, dany, dapatkan, dapatny, dapatnya, dapatr, dapet, dapetin, dapt, dar, darah, darat, darien, darii, darijalan, darikecamatan, darimana, darmahusada, darmo, darmokali, darsono, darurat, darussalam, das, dasar, dasi, data, database, datan, datangi, datangnya, datanya, dataran, datarannya, dateng,

diikat, diikuti, diikutkan, diimigrasi, diindahkan, diinfo,
 diinfokan, diinformasikan, diingikan, diinjak, diinjau, diinjinkan,
 diinput, diinternet, diintimidasi, diisi, diizinkan, dijadikan,
 dijadwal, dijadwalkan, dijaga, dijakarta, dijalan, dijalankan,
 dijalur, dijam, dijamin, dijangbret, dijamin, dijangkau, dijanjikan,
 dijarak, dijemput, dijhalan, dijkt, dijl, dijl, dijual, dijumpai,
 dikabari, dikabarkan, dikabulkan, dikaji, dikala, dikalangan,
 dikali, dikalkulasi, dikampung, dikanan, dikantar, dikantor,
 dikarcis, dikarekan, dikarena, dikarenakam, dikarnakan, dikasi,
 dikasih, dikasihkan, dikasihnya, dikawal, dikawasan, dikawatirkan,
 dikebut, dikecamatan, dikecamatanannya, dikecewakan, dikecilkan,
 dikedua, dikeduk, dikei, dikejar, dikejutkan, dikelilingi, dikelola,
 dikeluarkan, dikelurahan, dikemanain, dikembalikan, dikembalikn,
 dikempesi, dikemukakan, dikenai, dikenakan, dikenal, dikendalikan,
 dikendarai, dikerjasamakan, dikeroyok, dikertajaya, dikertas,
 dikeruk, diketau, dikhawatirkan, dikhususkan, dikiranya, dikiri,
 dikirim, dikirimkan, dikirm, dikit, diklat, dikmas, dikmbalikn,
 diknas, dikomplain, dikomplek, dikomputernya, dikomunikasikan,
 dikondisikan, dikonfirmasi, dikontrol, dikoordinasikan, dikoordinir,
 dikoran, dikoreksi, dikorupsi, dikosongkan, dikota, dikrm, dikrnkan,
 dikrukah, diksh, dikti, dikuasai, dikuatirkan, dikuatkan,
 dikuatrikan, dikubangan, dikuliahkan, dikumpulkan, dikurangi,
 dikuras, dikwsn, dilahirkan, dilain, dilaksanakan, dilaksanakn,
 dilaksanakna, dilaminating, dilampiri, dilampirkan, dilanjut,
 dilanjutkan, dilapangan, dilapis, dilaporkan, dilarang, dilatih,
 dilayanai, dilayani, dilebarkan, dilecehkan, dilegalisasi,
 dilegalisir, dilema, dilembaga, dilempar, dilemparkan, dilengkapi,
 dilepas, diler, diletakkan, dilewati, dilewatkan, dilihati,
 dilimpahi, dilindas, dilindungi, dilingkungan, dilingkungn,
 dilintasi, diliput, dilokasi, diloket, dilontang, dilontarkan,
 dilotre, diluar, dilubang, diluncurkn, dim, dimaafkan, dimaafkan,
 dimakan, dimaklumi, dimaksimalkan, dimallsaat, dimana, dimanapun,
 dimanasoalnya, dimandikan, dimanfaatkan, dimarahi, dimarmoyo, dimas,
 dimasa, dimasjid, dimasukkan, dimata, dimatikan, dimedia, dimedian,
 dimediasi, dimediasikan, dimensinya, dimerger, dimiliki, dimintakan,
 dimn, dimna, dimohon, dimuat, dimuka, dimundurkan, dimusim,
 dinaikkan, dinaikkannya, dinamai, dinar, dinas, dinasehati,
 dinasnya, dinaungi, dinding, dinebul, dingin, dinginden, dinihari,
 dinikmati, dinilai, dinkes, dinkominfo, dino, dinonaktifkan,
 dinormalkan, dinoyo, dinsos, dinyalakaan, dinyalakan, dinyatakan,
 diobrak, diolah, diolor, diombang, dionisius, dioper, dioperasikan,
 dioperasikan, dipakai, dipake, dipaksa, dipaksakan, dipalsukan,
 dipandang, dipandu, dipanggil, dipangkas, dipantau, diparani,
 diparanu, diparingi, diparkir, diparkirkan, dipasang, dipasang,
 dipasangkan, dipasangnya, dipasar, dipasng, dipatok, dipatuhi,
 dipaving, dipdam, dipecahkan, dipedalaman, dipegang, dipelayanan,
 dipemkot, dipendekkan, dipenuhi, dipenyebaran, diperbaharui,
 diperbaikan, diperbaiki, diperbaiki, diperbaikinya, diperbanyak,
 diperbarui, diperbarui, diperbesar, diperbolehkan, dipercantik,
 dipercaya, dipercepat, diperdalam, diperempatan, diperempatannya,
 diperhatikan, diperhatikn, diperijinannya, diperiksa, diperingati,
 diperingatkan, diperintahkan, diperjalanan, diperjual,
 diperjualbelikan, diperkampungan, diperkecil, diperkenalkan,
 diperketat, diperlakukan, diperlebar, dipermainkan, dipermasalahkan,
 dipermudah, diperoleh, diperpanjang, dipersilahkan, dipersingkat,
 dipersulit, dipertanggung, dipertanggungjawabkan, dipertengahan,
 dipertigaan, dipertimbangkan, diperumahan, diperuntukkan,
 dipidanakan, dipikir, dipikirkan, dipilih, dipindah, dipindahkan,
 diping, dipinggir, dipingir, dipingpong, dipintarri, dipintu,

dipisah, dipnaker, dipo, dipohon, dipojokan, dipompa, diponegoro, diponggo, diport, diposisikan, dipotong, diprbaiki, diprediksi, diprint, diprioritaskan, diproses, dipsng, diptoses, dipublikasikan, dipukul, dipulangkan, dipungut, dipusat, diputar, diputaran, diputuskan, dirampungkan, dirapikan, dirasakan, dirawat, dirayon, dirazia, direaliasikan, direalisasikan, direct, directly, direkam, direken, direkomendasikan, direksi, direktur, direkturnya, direlease, direlokasi, diremajakan, diremehkan, direncanakan, diresahkan, diresmikan, direspon, direspons, diretract, direview, direvisi, dirgahayu, dirjen, dirobuhkan, diruang, diruangan, dirubah, dirugikan, dirujuk, dirumah, dirusak, dirusun, dirusunnawa, dirut, disaat, disabilitas, disalah, disalahgunakan, disalahkan, disalurkan, disamakan, disambung, disambungkan, disambut, disamping, disampingnya, disana, disanksi, disapu, disarankan, disayangkan, disblh, disbudpar, disby, disbyatau, disco, disdagin, disduk, disdukcapil, disdukcapil, disebabkan, disebarluaskan, disebelah, disebelahnya, diseberang, diseberangkan, diseberangnya, disebrang, disebuah, disediakan, disediakan, disedot, disegani, disekitar, disekitaran, disekitarnya, disekitarnyaampir, disekolah, disela, diselatan, diselenggarakan, diselesaikan, diselokan, diseluruh, disembarang, diseminar, disemolo, disemoni, disemprot, disemua, disengaja, disentuh, disepanjang, diserahkan, diserahkan, diserang, disertai, disertakan, disertifikatkan, disesalkan, disesuaikan, disesuaikan, disetel, disetiap, disetujui, disewa, dishare, dishub, dishubkominfo, disiapkan, disiarkan, disibukkan, disidak, disidang, disidoardjo, disimpan, disingkat, disiplin, disiplinnya, disiram, disisi, disita, disitu, disko, diskominfo, diskotik, diskriminasi, diskusikan, dislike, disnaker, disni, disodori, disortir, disosialisasi, disosialisasikan, disparta, dispenda, dispendik, dispenduk, dispendukapil, dispendukcail, dispendukcapil, dispendukcapilsurabaya, dispensansi, disperdag, disperdagin, disperindag, dispilin, display, dispora, disposisi, disprnduk, distandardkan, distempel, disterilkan, distok, distribusi, distribusikan, distributor, distu, disuap, disudut, disugahi, disuguhkan, disungai, disuntik, disurabaya, disurat, disurh, disuru, disurug, disuruh, disurvey, diswasta, disy, disyaratkan, ditaati, ditabrak, ditabungkan, ditagihselang, ditahan, ditahun, ditakutkan, ditalangi, ditaman, ditambah, ditambahi, ditambah, ditampung, ditanah, ditanam, ditanami, ditanda, ditandai, ditandatangani, ditandatangani, ditandon, ditangan, ditangani, ditanggal, ditanggani, ditanggapi, ditanggung, ditargetkan, ditarif, ditarik, ditaruh, ditata, ditawari, ditawarin, ditawarkan, ditebak, ditebang, ditebangkan, ditegur, ditekan, ditelefon, ditelp, ditelpon, ditelusuri, ditemani, ditembak, ditembus, ditembuskan, ditempat, ditempati, ditempatkan, ditempel, ditemmeli, ditempuh, ditemui, ditemukan, ditendang, ditengah, ditengahnya, ditentukan, diterapkan, diterbitkan, diterima, diterimanya, diterma, ditertibkan, ditertibkannya, ditertipkan, ditertibkan, diteruskan, ditetapkan, ditetima, ditiadakan, ditiadakan, ditiang, ditidak, ditikungan, ditilang, ditimbulkan, ditindak, ditindaklanjuti, ditindaklanjuti, ditindaklanjuti, ditindaklanjuti, ditinggal, ditinggali, ditinggalkan, ditinggikan, ditinggl, ditingkat, ditingkatkan, ditinjau, ditinjau, dititipkan, ditl, ditlp, ditmbah, ditndak, ditolak, ditoleransi, ditransportasi, ditrotoar, ditrtibkan, dittd, ditugasi, ditugaskan, dituju, ditulis, dituliskan, ditumbuhi, ditumpuhin, ditumpuk, ditunda, ditunggu, ditunjukkan, dituntaskan, dituntut, diturunkan, ditutp, ditutup, ditutupi, ditutupnya, dituwowo, diuap, diubah, diujung, diulang, diulangi, diumumkan, diumumkannya, diumumkansaya, diundang, diundangan, diundur,

diupdate, diuruk, diurus, diuruskan, diurusnya, diusir, diusul,
 diutara, diva, divalidasi, diverifikasi, diwajibkan, diwakilkan,
 diwaktu, diwarung, diwilayah, diwilayahnya, diwujudkan, dj,
 djakarta, djalan, djanjikan, djohar, djoko, djony, djuli, dk, dka,
 dkasih, dkcamatan, dketahui, dkh, dki, dkk, dkp, dkpdinas, dkrenakn,
 dkrth, dkuh, dkunjungi, dl, dlahan, dlam, dlarang, dll, dllnya, dlu,
 dluar, dm, dmkn, dmn, dmna, dn, dna, dngan, dngn, doa, doakan,
 doanggg, doank, dobel, doc, document, dodok, doi, dok, doks, dokter,
 dokterny, dokternya, doktrin, dokumen, dokumenter, dolan, dolly,
 dolor, dominan, dominasi, domisili, domisilikarena, donal, donald,
 donas, dongkol, donk, donna, donny, donokerto, donomhlyo, donomulyo,
 donorejo, donowati, dont, dony, door, dorok, dorong, dorongan, dosa,
 dosen, double, download, dowo, dp, dpan, dpat, dpk, dpmpstsp, dpn,
 dpr, dprd, dpt, dptkan, dpu, dpubmp, dpucktr, dpump, dputus, dra,
 draft, drag, drainase, drastis, dreaming, dri, drimana, drive,
 driver, drivernya, driveway, driyorejo, drmh, drmn, drmn, drop,
 dropoff, drpd, drtd, ds, dsaat, dsampaikan, dsana, dsb, dsbnya,
 dselalu, dsetiap, dsidoarjo, dsitu, dskitar, dsna, dspnduk, dst,
 dstar, dstempel, dsuruh, dtc, dtepati, dterjadi, dtg, dtgi, dtidak,
 dtikungan, dtindaklanjuti, dtng, dtngnya, du, duanya, duduk,
 dudukan, duga, dugaan, duh, duit, duittt, duka, dukcapil, duku,
 dukuh, dukuhpakis, dukun, dukung, dukungan, dukungannya, duluan,
 dulunya, dulur, dulurku, dumar, dunia, dunk, dupak, duplicat,
 duplikat, durasi, durasim, durasinya, duri, durian, duriat, durung,
 durunge, dushub, dusun, duta, dutanggapi, duwik, dvr, dwakilkan,
 dwi, dwilayh, dwrg, dy, dyah, ea, ealah, ebelum, ebktp, eblmny,
 ecky, eco, ecowisata, edaaaaan, edar, edaran, edisi, edit, education,
 edukasi, edukatif, edy, ee, efek, efektif, efektifitas, efektivitas,
 efendi, efesien, effendie, efisien, efisiensi, egk, ego, eh, ehealt,
 ehealth, eh, eh, eh, eh, eh, eh, eh, eh, eh, eh, eh, eh, eh, eh, eh, eh,
 ekosistem, ekowisata, eks, eksekusi, eksekutif, ekskul, ekspedisi,
 ekspetasi, eksplorasi, eksposur, ekstasi, eksterior, ekstra, ekt,
 ekto, ektp, ektpnya, ektpsebenarnya, ektpsurasabaya, el, elampid,
 elang, elc, electronic, elektronika, elektrik, elektronik,
 elektronika, elektronikkoq, eletronik, elia, eliazer, elit, ellis,
 elok, eloknya, elpiji, elveka, email, emailnya, emang, embelembel,
 ember, embong, emeralda, emng, emosi, empati, emperan, empuk, emy,
 enak, enakan, enaknya, enam, endah, endapan, endik, endrosono, enek,
 engan, enggan, enggar, engkel, engkok, english, enisa, enisushaa,
 entar, enteng, entengnya, enterprise, entrance, entry, entuk,
 eokowisata, epengurusan, era, eranyoto, eri, erick, erlin, erina,
 eror, erosi, erp, error, erubahan, erupakan, erutama, erwin, erzawan,
 esa, esdm, esensinya, esok, esoknya, esser, estetika, estimasi,
 estimasikan, estimasinya, etc, etika, etis, etos, eva, evakuasi,
 evaluasi, evaluasinya, evandri, even, event, everyone, everywhere,
 evi, evyindra, ew, ewadul, ewang, ewangi, ex, example, excavator,
 excellence, exchange, exit, exp, expedisi, expire, expired, expo,
 exposure, ekspresi, express, exprid, ext, extensively, fa, facebook,
 faceebook, factor, fadi, fadilah, faham, fahmy, fahrezy, fahrudin,
 fair, fairplay, fakta, faktane, faktanya, faktor, fakultas, falcon,
 falit, familiar, fandy, fanspage, fany, farah, farida, farma,
 farmasi, fase, fashion, fashionny, fasibilitas, fasilitas,
 fasilitasnya, faskes, fast, fastrespon, fasum, fatal, fatalnya,
 fathur, fauzi, fb, fc, feature, feb, febrian, february, february,
 february, fee, feedback, feedbacknya, feeder, fendi, fendy, fenomena,
 ferdy, fest, festifal, festivak, festival, few, fika, fikelurahan,
 fikry, file, filenya, film, final, finally, finansial, finger,
 fingerprint, finish, finishingnya, finshing, fira, firdaus,
 firmansyah, first, fish, fisik, fisiknya, fitna, fitri, fitroni,

fitur, fiturnya, flash, flayoffer, flazz, flora, flow, fly, flyover, foggin, fogging, foging, follow, followup, followupnya, folow, fongging, food, for, forget, form, formalitas, format, formatnys, formulir, forum, forward, foto, fotocopi, fotocopy, fotocopyan, fotografi, fotokopi, fotonya, found, fr, fransiscus, free, freeday, freeway, fridayanti, from, front, frontage, fruition, fslta, fsmts, fto, fuck, full, fumes, fungsi, fungsikan, fungsinya, furniture, fuso, futsal, future, fyi, gabisa, gabung, gabungan, gac, gadelsari, gadget, gading, gaduh, gadukan, gadung, gadungan, gag, gagah, gagal, gagasan, gagh, gaji, gajian, gajinya, gal, galangan, galau, galaxi, galaxy, galh, gali, galiaan, galian, galiannya, galih, galihan, galing, galon, galuh, galut, gambar, gambarnya, game, gampang, gampangnya, ganda, gandeng, gang, ganggu, gangguan, gangguan, ganggung, gangur, gantangan, ganti, gantung, gaoleh, gap, gaptek, gapura, gara, garam, garang, garasi, garbage, garda, garden, gardu, garis, garnetha, gas, gasih, gaskatanya, gatal², gawat, gawe, gaya, gayanya, gayung, gayungan, gayungsari, gazaly, gazebo, gbisa, gbt, gd, gdc, gdg, gebang, gede, gedor, gedung, gegar, gelak, gelam, gelap, gelapan, gelapnya, gelar, gelas, gelombang, gelora, gema, gemar, gembala, gembongan, gembok, gembong, gembongtebasan, gempa, gempol, genangan, genangannya, genangi, genap, gencar, gendang, generally, generasi, genteng, gentengkali, genting, gerakan, gerakkan, geram, gerangan, gerbang, gerbangnews, gereja, gerejagembala, gerinda, gerobak, gerombolan, gersang, gersik, gersikan, gesa, gesek, gesekan, gesit, gesung, getahnya, geyzha, gg, ggi, ggheta, giandi, giant, giat, gigi, gigih, giginya, gigitannya, giki, gila, gilang, giliran, gimna, gini, ginian, ginjal, giras, girik, girilaya, girsang, gita, gitudr, give, gizi, gki, gkn, glangsing, gledenkan, gledenkan, global, glora, gm, gmna, gn, ngan, gni, gnung, go, gogor, gojek, gol, golongan, goni, goo, good, goodandcoolstudio, google, googlemap, googling, gopoh, gor, goreng, gorenza, gorng, gorong, gosipnya, got, gota, gotnya, gotong, gowo, goyang, gpp, gr, gragal, graha, grahadi, grand, grandcity, grande, grandmax, granting, gratis, gratisan, gratisnya, gratisssss, great, green, greencleen, greenouse, greges, grendo, gresges, gresik, gresikan, grha, gringsing, griya, grnangan, grobaknya, grogi, grogol, grosir, group, grudo, gt, gtt, gtu, gtuuuu, gub, gubeng, gubernur, gubernuran, gubuk, gudang, gugur, gula, gulita, gunanya, gunawang, gunawangsa, gundih, gundukan, gunung, gununganyar, gunungsari, gurau, gurbernuran, guru, gurung, gus, gusnanto, gusur, gutter, gwalk, gym, ha, habiburrazak, habiburtaxak, habis, habitat, hack, hadapi, hadi, hadiah, hadiahnya, hadir, hadirnya, hadits, hadiyanto, hadrah, haduhh, hafissa, hahahahahaha, hai, haiii, hajar, hajatan, haji, hak, hakata, hakim, hakini, haknya, hal, halal, halaman, halamannya, haliem, halim, hall, hallah, hallo, halloo, halnya, halo, halte, haluan, halus, hama, hamba, hambat, hambatan, hamil, hamim, hamper, hampiri, hanamasa, hanandika, hancur, handle, handycraft, hang, hangat, hangus, hantu, hanua, banyak, hanyut, happy, hapus, hapusnya, har, haram, harap, harapan, harapannya, harapkan, harapn, haras, hardianti, hardware, harga, hargai, harganya, hari, harian, harimngenai, harini, harinya, harley, harmoni, harry, hars, harsono, hartanto, hartono, harua, haruskah, haruskan, haryadi, haryono, has, hasanudin, hasil, hasilny, hasilnya, hasyim, hati, hatikan, hatinya, hatta, haturkan, haus, have, having, hay, hbs, hbs, hbsag, hczm, hdp, he, health, hearing, hebat, hebatnya, heboh, hehe, hehehe, hehehehe, hello, helm, helmiairan, hemat, hendra, hendrik, heni, henny, henti, hentikan, hepastitis, heran, herannya, here, heri, heritage, hermawan, heru, hewan, hewannya, hgb, hi, hias, hiasan, hibah, hibuaran, hiburan,

hidayat, hidayatitrim, hidup, hiduphoax, hidupin, hidupnya, hidupx, hijau, hijaunya, hijrah, hijuannya, hiks, hilal, hilang, hilir, himbuan, himpitan, himpun, himpunan, hindari, hindu, hinga, hinggil, histori, historinya, history, hitam, hitung, hitungan, hitungannya, hj, hjks, hjn, hlg, hm, hmm, hmmm, hmpir, hny, hnya, ho, hobi, hoei, holes, holland, hologram, home, honda, hongga, honor, honorer, hook, horizontal, hormat, hormati, hormta, hospital, hospitality, hotel, house, however, hp, hpl, hpnya, hr, hrd, hrga, hri, hrnya, hrs, hrsnya, hrus, hsl, hslnya, hsrus, https, hub, hubu, hubungan, hubungannya, hubungi, huda, hudayanto, hujan, hujannya, hukmi, hukum, hukumnya, hulu, humada, human, humas, humor, huni, hunian, huruf, husada, hut, hutagaol, hutan, hutang, hvs, hypermart, hypmc, ibadah, ibis, ibrahim, ibtidahiyah, ibu, ibuk, ibukk, ibukku, ibukota, ibulah, ibunda, ibunya, ibupetugas, ice, ichsan, ichsananda, icon, id, idam, idaman, ide, ideal, identik, identitas, identitasnya, identity, idi, idpel, idul, ied, ifan, iformasi, igd, ign, ii, iia, iii, iiic, ijasa, ijasah, ijasahnya, ijazah, ijin, ijinakan, ijinnya, ijo, ijone, ika, ikado, ikan, ikana, ikatan, ikhlas, iki, ikkousha, iklan, iklim, ikon, ikt, iku, ikutan, ikuti, ikutkan, ikutsertakan, ikuyt, ikwan, ilalang, ilegal, ileh, ilham, ilmu, ilustrasi, ilustrasinya, im, image, imam, imanudin, imas, imb, imbal, imbalan, imbang, imbangi, imbas, imbasnya, imigrasi, immigrasi, immunoglobulin, impare, impian, implementasi, implisit, impression, impressive, improve, improvements, in, inap, inbox, incaran, inda, indah, indahnya, indahsari, independent, india, indihome, indikasi, individu, individual, indo, indomaret, indomart, indonesia, indonesiabar, indonesian, indovision, indra, indragiri, indrapura, indrawati, induk, indung, industri, industrial, industry, infaq, infeksi, info, infojalanberlubang, infokan, infomasi, infone, infonya, infoo, infor, informasi, informasikan, informasinnya, informasinya, informasix, informatif, informatika, information, infornya, infox, infrastruktur, infomasi, infus, infusnya, ingatkah, ingatkan, ingg, inggih, inggit, inggris, ingi, ingiiiiiin, inginnya, ingkang, ingkar, ingn, ini, inipun, inisiatif, iniö, injak, injing, injoko, ink, inklusi, inkubator, inni, inovasi, inovasinya, inpres, input, inputan, insan, insatansi, insinyurnya, inspeksi, inspirasi, instalasi, instalasinya, instansi, instant, institusi, institut, instruksikan, insya, insyaallah, intan, integrasi, intensif, intensitas, intensitasnya, interaksi, interaktif, interface, intern, internal, internasional, international, internet, internete, intervensi, interview, intiland, intinya, into, introspeksi, investasi, investigasi, investor, inzaghi, ioleh, ioppabf, ios, ip, ipam, ipar, ipb, iph, ipit, ippa, ips, ipt, ipul, ir, irawan, ird, irg, iri, iris, irka, ironis, ironisnya, irsyad, iruan, irvan, irwan, isa, isasi, isbn, iseng, isi, isian, isinya, iskandar, islam, ismail, iso, isok, isone, ispa, issue, istana, istilah, istilahnya, istiqomah, istirahat, istrahat, istri, istrinya, isu, isue, iswahyudi, isyak, it, itc, item, itikad, itinari, its, itself, itukalau, itungan, itupun, itutdk, ituu, iua, iuran, iv, ivan, ivd, ive, iwan, ix, ixa, iya, izasah, izin, izinkan, izinnya, jabatan, jabatannya, jabon, jabonkita, jad, jadi, jadii, jadikan, jadimohon, jaditerkena, jadwal, jadwalkan, jadwiga, jaeingan, jaga, jagain, jagalan, jagir, jagiran, jago, jahe, jahitan, jais, jajan, jajanan, jajar, jajaran, jajarannya, jakarta, jaksa, jalah, jalan, jalanakan, jalanan, jalanannya, jalannya, jalantaman, jalanya, jalar, jalasena, jaln, jaluk, jalur, jalurnya, jam, jamaah, jaman, jamanny, jambangan, jambangannya, jambraparuteny, jambret, jami, jamil, jamin, jaminan, jaminannya, jamkesda, jamkesmas, jammalam, jamsostek, jamu, jamur, jan, jancukan, janda, janggal,

jangka, jangkar, jangkungan, janji, janjian, janjikan, janjinya, janjix, jannah, jantung, januari, january, janur, jarak, jaraknya, jaran, jarang, jarene, jari, jaring, jaringan, jarinya, jarum, jasa, jasad, jasanya, jasaraharja, jaskesmas, jasmias, jason, jatah, jateng, jati, jatim, jatu, jatuh, jatuhnya, jauari, jauh, jauuuh, jauuuuuuuuhhhhhhhhh, jawa, jawabannya, jawabanx, jawabanya, jawaban, jawabya, jawar, jawatengah, jawu, jaya, jayengrono, jazaakumullah, jazz, jdi, jdikan, jdlah, jdnya, jebakan, jeblog, jebol, jebool, jecanatan, jedih, jedug, jeglong, jejaring, jelang, jelas, jelasin, jelaskn, jelata, jelek, jelidro, jematan, jembatab, jembatan, jembatannya, jember, jempol, jemput, jemur, jemursari, jemurwonosari, jenasah, jenazah, jenazahsudah, jendela, jenderal, jendral, jendulan, jenenge, jengkel, jenis, jenisnya, jenjang, jennifer, jenuh, jepara, jera, jerat, jerawat, jerih, jeritan, jerman, jernih, jeruk, jeshy, jetis, jga, jgdan, jgn, jikapun, jimerto, jingle, jisa, jiwa, jiwaalkhamdulillah, jiwo, jj, jjerawat, jjur, jk, jkarta, jkm, jkn, jkrta, jkt, jlan, jlbb, jlbt, jlidro, jllb, jlm, jlnnya, jls, jm, jmp, jngan, job, jobdesk, jobfair, jogging, jogging, jogja, jogya, jojo, jojoran, jok, joko, jokonawi, jolotundo, jombang, jongkok, jorok, joroknya, jose, joss, josé, jovan, joyo, joyoboy, joyoboyo, jp, jpg, jpo, jpu, jrot, jt, jual, jualan, juanda, juanita, juara, judes, judi, judul, jugaa, jugak, jugruk, jujur, jukir, jukirnya, juknis, juli, juliadi, july, jum, jumah, jumat, jumatan, jumblah, jumpai, jun, junarti, junction, juni, juniardy, junk, jupierter, jurang, juri, jurkunci, jurnalistik, jurrasic, juru, jurusan, justicio, juta, jutaan, juwingan, juwita, jwb, jwban, jx, ka, kaami, kaau, kab, kabar, kabarnya, kabeh, kabel, kabelnya, kabupaten, kabur, kaca, kacab, kacamatan, kacaunya, kadaluarsa, kadaluarsanya, kadang, kadarnya, kader, kadih, kadis, kadishub, kadispendukcapil, kado, kados, kadung, kaeih, kaget, kagetnya, kagumi, kah, kaharudin, kahfi, kai, kail, kain, kajian, kak, kakak, kakek, kakekek, kaki, kakinya, kal, kalah, kalangan, kalasan, kali, kalianak, kalianyar, kaliasin, kalibokor, kalibutuh, kalidami, kalijudan, kalikediding, kalikedinding, kalikepiting, kalilom, kalimantan, kalimas, kalimat, kalimir, kalinya, kaliondo, kalirungkut, kalisari, kalisaridamen, kalisosok, kalisumo, kaliwaron, kaliwaru, kalkulator, kalo, kalok, kalolom, kalongan, kalsel, kaltara, kalteng, kaltim, kalu, kalupun, kamal, kamar, kamarnya, kambaya, kambing, kamboja, kamera, kamil, kamipun, Kamis, kamling, kampanye, kampling, kampoeng, kampong, kampu, kampunf, kampung, kampungnya, kampungrt, kampungsemoga, kampur, kampus, kampusnya, kamtib, kamubung, kan, kanan, kandang, kandang, kandas, kandidat, kadung, kadungan, kadungnya, kang, kanim, kanker, kann, kantin, kantong, kantor, kantore, kantornya, kanya, kaos, kapal, kapas, kapasan, kapasari, kapasitas, kapolda, kapolrestabes, kapuas, kapuasterima, kapur, kapus, karah, karana, karang, karangan, karangempat, karangmenjangan, karangpilang, karangpoh, karangrejo, karangtaruna, karangwismo, karaoke, karapan, karat, karawang, karcis, karema, karen, karena, karenakan, karenkan, karenna, karep, karet, karim, karimata, karir, karna, karnakan, karnival, karo, karpel, karrna, kartangpilang, kartar, kartika, kartini, kartu, kartunya, karung, karunia, karwo, karya, karyawan, karyawanmisal, karyawannya, kas, kasar, kasaran, kasatgas, kasatpol, kasek, kash, kasi, kasian, kasiani, kasianingrum, kasih, kasihan, kasihani, kasihh, kasik, kasil, kasmadi, kasur, kasus, kata, katamso, katamya, katax, kate, kategori, kathah, katholik, katolik, katung, kaum, kauman, kav, kavling, kawan, kawasan, kawatih, kawatir, kawin, kawinan, kaya, kayak, kayaknya, kayanya, kayak, kayu, kayunya, kaza, kb, kbbi, kbbl, kberadan, kbersihan, kbetulan, kbli, kbr, kbs, kbtln,

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kepanjangan, keparkiran, kepastian, kepastiannya, kepatutan, kepd, kepedulian, kepemerintah, kepemilikan, kepemimpin, kependudukan, kependudukannya, kependudukn, kepengadilan, kepengurus, kepengurusan, kepengurusannya, kepentingan, kepentingangan, keperluan, keperluan, kepesertaan, kepikiran, kepilisian, kepimpinan, kepindahan, kepintaran, keplek, kepmen, kepnasan, kepolisian, keponakan, kepotong, kepraon, kepsek, kepuasan, kepulauan, kepulauan, keputih, keputran, keputusan, ker, kera, kerabat, kerabatnya, kerahasiaan, kerahkan, kerajaan, keramaian, keramik, keramiknya, kerana, kerap, kerapian, kerapu, keras, kerawangan, kerembangan, keren, kerena, kerentanan, kerentenan, kerepotan, keresahan, kereta, keretakan, keributan, kering, keringanan, kerja, kerjaan, kerjabakti, kerjain, kerjakan, kerjanya, kerjasama, kerjasamanya, kerjasosial, kernet, keropos, kertajaya, kertas, kertasnya, kerto, kertoadi, kertoarjo, kertomenanggal, kerudung, kerugian, keruh, keruk, kerukunan, keruma, kerumah, kerumahnya, kerusakan, kerusakannya, kruskan, kes, kesadaran, kesah, kesakitan, kesal, kesalah, kesalahan, kesalahpahaman, kesamaan, kesan, kesana, kesannya, kesanya, kesatuan, kesaya, kesbangpol, kesby, kesediaan, kesediaannya, keseharan, keseharian, kesehariannya, kesehatan, keseimbangan, kesejahteraan, kesekian, kesel, kesalahan, keselamatan, keselarasan, keselatan, kesembuhan, kesempatan, kesempatannya, kesengajaan, kesenian, kesenjangan, kesepakatan, keserasian, kesetaraan, kesiapa, kesiapan, kesibukan, kesimpulan, kesini, kesisi, kesiswaan, kesombongan, kespa, kesra, kesrempet, kesuatu, kesudian, kesulitan, kesumba, kesungai, kesurabaya, kesusahan, ket, ketabang, ketaggapan, ketahanan, ketahuan, ketahui, ketahun, ketandan, ketat, ketawa, ketegasan, ketegasannya, keteguhan, ketelitiannya, ketempat, ketemu, ketenagakerjaan, ketenangan, ketengah, ketenteraman, ketentruman, ketentuan, ketentuannya, keterampilan, keterangan, keterangannya, keterbatasan, keterbukaan, keterima, keterkurangan, keterlambatan, keterlambatannya, ketersediaan, ketertiban, ketetapan, ketidak, ketidakberesan, ketidaknyamanan, ketidaknyamanannya, ketidaksesuaian, ketidaktransparansinya, ketiga, ketiganya, ketik, ketilka, ketimbang, ketindak, ketindaklanjutan, ketindihan, ketinggalan, ketinggian, ketinggiannya, ketintang, ketlisut, ketolak, ketrampilan, ketrangan, ketua, keturunan, ketus, ketusnya, ketya, keuangan, keuangannya, keuntungan, keutara, kevin, kewajaran, kewajiban, kewajibannya, kewalahan, kewarga, kewarganegaraan, kewen, kewenangan, kewirausahaan, keyakinan, kfc, kh, khadijah, khairan, khan, khansa, khas, khawathir, khawatir, khawatirkan, khm, khodijah, khofifa, khoir, khujanan, khursus, khusuk, khusunya, khusus, khususkan, khususnya, kia, kiai, kian, kidul, kim, kimia, kincir, kinerja, kinerjanya, kios, kipas, kipem, kir, kira, kirain, kiri, kirim, kirima, kiriman, kirimkan, kirinya, kiro, kis, kisapbn, kisapbnitu, kisan, kitanya, kitap, kitapnya, kitas, kitir, kiyomi, kjadian, kk, kkecamatan, kkkartu, kn, knk Korupsi, kkurangan, klaim, klain, klakahrejo, klampis, klanggri, klarifikasi, klas, klasifikasi, klau, klemens, klenteng, kliatan, klien, klik, klingsingan, klinik, klinya, klok, klontong, klop, klopun, klr, klrga, kls, keluarga, kluarnya, klub, klumprik, klurahan, klw, klwr, km, kmarin, kmbali, kmbl, kmbli, kmd, kmdian, kmdn, kmi, kmn, kmpng, kmpung, kmr, kmren, kmrn, kms, kmudian, kn, kna, knaikan, knalpot, knalpotnya, knapa, kndala, kndgsari, knfirmasi, know, knpa, knri, kntor, kntr, ko, kodam, kode, kodisi, kodratnya, kofirmasi, kog, kohar, koleksi, kolektif, kolektive, kolom, kolombo, kolot, kolusi, kombes, komedi, komen, komentar, komersial, komindo, kominfo, komisi, komit, komite, komitmen, komodo, komp, kompak, compare,

kompensasi, kompensasinya, kompetisi, kompetitif, kompl, komplain, komplek, kompleks, komplek, kompl, komponen, kompos, komprehensif, komputer, komputerisasi, komputernya, komputernya, komunikasi, komunikatif, komunitas, konco, kondektur, kondiai, kondisi, kondisinya, kondusif, koneksi, konfirmasi, konfirmasikan, konfirmasinya, konflik, kongkret, kongslet, koni, konkret, konkretnya, konkritnya, kono, konon, konsekuensi, konseling, konsentrasi, konsep, konsepnya, konser, konservasi, konsisten, konslet, konsleting, konsulat, konsultan, konsultansi, konsultasi, konsumen, konsumsi, kontainer, kontak, kontakannya, kontra, kontrak, kontrakan, kontrakannya, kontrakkan, kontraktor, kontraktornya, kontraproduktif, kontras, kontrol, konvensional, konvensional, konyol, kooperatif, koord, koordinan, koordinasi, koordinasikan, koordinator, koordinatornya, kop, koperasi, kopi, kopwan, koq, koramil, koran, karaoke, korban, korbannya, korbar, kordinasi, korea, koreksi, korem, korindo, kornea, korupsi, kos, kosong, kosongan, kost, kot, kota, kotak, kotamadya, kotanya, kotor, kotoran, kotorannya, kornya, koyok, kp, kpan, kpasitas, kpastian, kpda, kpn, kpp, kpr, kq, krajan, kramat, kramik, krampung, kran, kraggan, krcis, kreatif, kreatifitas, kredit, krematorium, kremangan, kremil, krese, kreteksangat, kreteria, krg, krgnya, krian, kriminal, kriminalitas, krisdayanti, krisis, kristen, kristian, kritik, kritis, krjbkt, krmh, krna, krng, kronologi, kronologinya, kronologis, kronologisnya, kropos, kroscek, kru, kruk, krukah, krukongkat, ks, ksana, ksby, ksh, ksh, ksk, ksks, ksmpatan, ksna, ksni, ksulitan, kt, kta, ktax, ktika, ktanya, ktp, ktpku, ktpnya, ktpnyatapi, ktr, ku, kua, kualiatas, kualitas, kualitasnya, kuasa, kuasai, kuasakan, kuat, kuatir, kuatirkan, kubang, kubangan, kubanggakan, kubik, kubur, kuburan, kuburandepan, kucing, kucingan, kuda, kudu, kudu, kue, kuh, kuisiuner, kuk, kukuatan, kukuh, kukun, kukus, kul, kuli, kulia, kuliahnya, kuliner, kulineran, kulit, kulo, kulon, kumandngkan, kumpulan, kumpulkan, kumuh, kunci, kuning, kunirati, kunjung, kunjungan, kunjungi, kuoso, kuota, kuotanya, kupang, kuping, kupon, kuragnya, kurangan, kurangi, kurangnya, kurir, kurniati, kurniawan, kursi, kursornya, kursus, kursusnya, kurun, kurus, kusuma, kusumah, kususnya, kuswanto, kutai, kutilang, kutipan, kutisari, kutu, kuwagean, kuyup, kwagean, kwalitas, kwatir, kwh, kwitansi, ky, kya, kyai, kyak, kyk, la, lab, laba, laban, labnngsung, laborat, laely, laen, lag, laga, lagi, lags, lagu, lagy, lahan, lahir, lahiran, lahirnya, lah Wong, laik, lailatul, lain, lainkah, lainny, lainnya, lair, lajang, laju, lajunya, lajur, lajuti, lak, laka, lakalantas, lakar, lakarsantri, lake, laki, lakip, laksanakan, laksonoputro, laku, lakukan, lakukanlah, lalai, lalang, lalin, lalir, lalu, lalui, laluin, lalulintas, lama, lamabat, lamakah, lamar, lamaran, lamash, lamban, lambannya, lambat, lambatnya, lamilating, laminating, laminatingan, lamjuti, lamong, lamongan, lampau, lampid, lampiran, lampirkan, lampu, lampung, lampunya, lampur, lan, lancang, lancar, lancarnya, lancip, land, landai, landasan, landika, langganan, langgar, langka, langkah, langon, langsu, langsubg, langsung, langsungkan, lanjut, lanjutan, lanjut, lanjut, lanjutin, lanjutnya, lanjutkan, lanjutnya, lansia, lansiran, lansung, lantai, lantainya, lantaran, lantasi, lantungan, lap, lapak, lapaknya, lapang, lapangan, lapangannya, lapar, lapas, lapis, lapisan, lapor, laporan, laporkan, laporkn, lapornya, lapto, laptop, laptopnya, larang, larangan, larasati, largest, lari, larut, larva, las, laser, lasmiati, last, lastly, latah, latar, latihan, laukan, laut, lautan, lautpun, lawan, lawannya, lay, layak, layakkah, layaknya, layanan, layananny, layanannya, layang, layangan, layani, layanilah, layar, lazim, lbh, lbih, lbr, ldii, leads, leasing, lebak,

lebar, lebaran, lebarkan, lebarnya, lebat, lebatnya, lebih, lebihkurang, lebihnya, lebo, lee, legal, legalisasi, legalisir, legalisirbtersebut, legalisirnya, legalitas, legalkan, legh, lek, leksono, lelah, lelaki, lelakinya, lelang, lelet, leluar, lem, lemah, lemahnya, lemari, lembaga, lembar, lembaran, lembur, lemot, lempar, lempeng, lempung, lemu, lengah, lengakapi, lenggang, lengkap, lengkapi, lengkapin, lengser, lenmarc, lepas, les, lesehan, less, lestari, lesti, letak, letakkan, letaknya, leter, letter, level, lewati, lewatnya, lf, lgdalam, lgi, lgidri, lgs, lgsung, lha, lho, lhr, lia, lian, liar, liarnya, liarpolisi, liat, liatin, libur, liburan, licin, lidah, lidya, liem, lift, liga, ligalisir, light, lightnya, lighth, lihat, like, lilis, lily, limantara, limaorg, limbah, limbahnya, limpahan, lin, linda, lindungan, line, lingk, lingkaran, lingkunan, lingkungan, lingkungannya, lingkup, lingsor, lini, linimasa, link, linknya, linmas, lintas, lintasan, lintasi, lintasnya, lipat, liponsos, lips, lis, lisa, lisan, list, listrik, listriknya, literasi, livable, live, living, lk, lkmk, lkpd, lm, lma, lmbr, lngs, lngsng, lngsung, lnjut, lo, load, loading, loadingnya, loak, lobang, lobangnya, log, logika, login, logis, logistik, loh, lokal, lokalan, lokalisasi, lokasi, lokasinya, loker, loket, loketnya, loketpun, lolos, lomba, lombakan, loncat, longsor, longsornya, lontar, lopak, lor, lorong, lotre, lotus, launching, love, lowongan, loyal, loyalitas, lp, lpj, lpjnya, lpmk, lpngan, lppnri, lpse, lsg, lsm, lspot, lt, luabng, luama, luapan, luarbiasa, luas, luasan, lubang, lubangnya, luberan, lucunya, ludruk, lui, luka, lukisan, luluis, lulus, lulusan, lum, lumajang, lumayan, lumer, luminor, lumpur, lumpurnya, lunas, lunasi, luntungan, lupa, luput, lur, lurah, lurahe, lurahnya, lurah², lurd, lurus, lurusnya, lusa, lusi, lusu, lusu, lutut, luv, lwati, lwt, lyn, ma, maaff, maajid, mabok, mabuk, mabukan, mac, macam, macamnya, macat, macem, macet, macetnya, macetttt, machfud, madam, made, madhorotnya, madrasah, madu, madura, madya, maen, maff, mafia, magang, magerejo, magersari, maghrip, magister, magnet, magrib, maha, mahakarya, mahal, mahalnya, maharini, mahasiswa, mahasiswi, mahir, mahkluk, mahus, mail, mailtoheryanto, main, mainan, mainboard, mainhole, majalah, majapahit, majen, maji, majid, maju, makadari, makam, makan, makanan, makannya, makasar, makasi, makasih, makassar, make, makek, makelar, maker, maklum, makmu, makmur, maks, maksa, maksdnya, maksimal, maksimum, maksud, maksude, maksudnya, maksutnya, mal, mala, malag, malaikat, malak, malam, malan, malang, malas, malaysia, malem, males, maling, malinggggg, mall, mallgm, malu, mama, mambantu, mambuat, mampet, mampetjuga, mampuan, man, mana, manado, management, manager, managment, manajemen, manakah, manambah, mananggal, mananggapi, mananya, manapun, manauntuk, manca, mancanegara, mancur, mandala, mandat, mandi, mandir, mandiri, mandirii, mandor, mane, maneh, manfaat, manfaatkan, manfaatnya, mangalir, mangan, mangga, manggrove, mangka, mangkal, mangkrak, mangrove, mangu, manitance, mansyur, mantabbb, mantan, mantau, manteb, manual, manukan, manukanlor, manula, manusia, manusiawi, many, manyar, mapan, maps, marah, marahi, marahny, marak, maraknya, mardian, maret, marga, marger, margodadi, margomulyo, margorejo, margorukun, margumulyo, mari, maria, marich, marina, marinir, maris, marius, marka, market, marketing, markir, marmoyo, mart, marta, martina, mas, masakan, masakjukir, masal, masalaj, masang, masyarakat, masduki, mash, mashudi, masi, masif, masii, masjid, maskih, maslah, maslh, masnawati, maspion, masrudi, massa, massage, massal, master, mastrip, masuk, masukan, masuki, masukin, masukkan, masuknya, masya, masyaallah, masyakarat, masyarakan, masyarakat, masyarakatlah, masyrakat, mata, matahari, matakota, matang, matanya, mataram,

matematika, matematikanya, materi, materi, materi, mathari, mati,
matian, matic, matik, matikan, matikata, matinya, matitotal, matot,
matur, maturnuwun, matursuwon, matursuwun, mauk, maukah, maulana,
maumikut, mav, maw, mawar, max, maximal, maxone, mayangkara, mayjen,
mayjend, mayor, mayoritas, mbah, mbak, mbalik, mbayar, mbe, mbejaji,
mbengkel, mbengok, mbk, mbl, mboh, mbok, mbolak, mbulet, mbungkul,
mburi, mc, mcb, mcbnya, mcd, mck, mcm, mdapat, mdapatkan, mdengar,
mdpt, mds, me, meangkat, mebahayakan, mebel, meberikan, mebuat,
medaeng, medan, medayu, media, mediacenter, mediacentre, median,
mediasi, mediator, medis, medokan, medsos, modulab, medyu, meer,
meeting, mefasilitasi, mega, megah, megambil, megijinkan, meh, mei,
meja, mejoyo, mekanisme, mekatan, melacak, melahirkan,elaikan,
melainkaan, melaju, melaksana, melaksanakan, melaksanakan, melakulan,
melalor, melalui, melakukan, melalui, melamar, melambatkan,
melampirkan, melanggar, melangkah, melangsamkan, melanjutkan,
melapor, melaporjan, melaporkan, laporkn, melarang, melarangnya,
melarikan, melas, melatih, melawai, melawan, melayani, melebar,
melebarkan, melebihi, melecehkan, meledak, melek, melekat, melempar,
melempem, melengkapi, lengkapinya, melengkung, melepaskan,
melesaikan, melestarikan, meletakan, meletakkan, melewati,
melewatinya, melibatkan, melihatkan, melimpah, melimpahkan,
melindungi, melintang, melintas, melintasi, meliputi, meliputi,
meliputnya, melirik, melisa, melnjutkan, melok, meloko, meloncat,
melongok, melonjak, melotot, meluangkan, meluap, meluapnya, meluas,
meluber, melukan, melulu, melumer, melunasi, melunasinya, lupa kan,
memacu, memadai, memafaatkan, memahami, memajukan, memakai, memakan,
memaki, memakirkan, memaksa, memaksimalkan, memalukan, memancar,
memancing, memandang, memandikan, memanfaatkan, memanggil,
memangkas, memangkasi, memanhh, memanjakan, memanjkkn, memanjang,
memanjat, memantau, memantaunya, memarahi, memarkir, memarkirkan,
memasak, memasang, memasarkan, memasuki, memasukkan, mematahkan,
mematikan, mematok, mematuhi, membaca, membacanya, membagi,
membagikan, membahagiakan, membahas, membahayakan, membahayakn,
membahayan, membahu, membaik, membakar, membalas, membandel,
membandingkan, membangun, pembangunan, membantah, membanti,
membantu, membara, membasahi, membatalkan, membatasi, membatu,
membaur, membawa, membawahi, membawasurat, membayangkan, membayar,
membayari, membebani, membebaskan, membeli, membeludak, membenahi,
membenarkan, membendung, membengkak, membengkakkan, membentak,
membentuk, memberantas, memberatkan, memberbaiki, memberdayakan,
memberitahu, memberitanyakan, memberitau, memberkati, membersarkan,
membersihkan, membersihkan, membersihkan, besar,
membetulkan, membetulkannya, membhayakan, membhyakn, membhykn,
membiarkan, membiayai, membicarakan, membikin, membina, membinacsr,
membingungkan, membludak, membolehkan, membongkar, memboroskan,
membuahkan, membuang, membuangnya, membuatkan, membuatku,
membuatnya, membubarkan, membudaya, membuka, membukanya,
membuktikan, membuntu, membunyikan, memburuk, membutuhkan,
membutuhkn, membuyikan, membyar, memecah, memed, memediakan,
memegang, memeiliki, memekai, memekakkan, memelihara, memendekkan,
mementingkan, memenuhi, memerangi, memeras, memeriksa, memeriksakan,
memerintahkan, memet, memfasilitasi, memfilmkan, memfoto,
memfotonya, mengangkut, memicu, memikirkan, memikirkannya, memilih,
memiliki, memimpin, memindahkan, memindahkannya, meminggirkan,
meminimalisir, meminimaliskan, meminimalkan, memint, memintak,
memintanya, memisahkan, menjumpai, memnarik, memneri, memnta,
memohon, memoles, memompa, memonitor, memotong, mempan, mempedomani,
mempelajari, mempengaruhi, memper, memperbaharui, memperbaharuinya,
memperbaiki, memperbaikinya, memperbaiki, memperbarui,

memperbolehkan, memperburuk, mempercantik, mempercepat, memperdalam,
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 memperlancar, memperlebar, memperluas, mempermainkan,
 mempermasalahkn, mempermudah, mempermudah, memperoleh,
 memperpanjang, memperparah, memperparahnya, mempersalahkan,
 mempersempit, mempersilakan, mempersulit, mempertahankan,
 mempertimbangan, mempertimbangkan, mempesona, memplaster,
 memposisikan, memprediksinya, mempresentasikan, memprihatinkan,
 memperingati, memprioritaskan, memprogramkan, memproses,
 mempublikasikan, mempublish, mempunyai, memuaskan, memuaskn, memuat,
 memudahkan, memukul, memulainya, memulangkan, memulihkan,
 memundurkan, memungut, memusat, memusnahkan, memustuskan, memutar,
 memutus, memutuskan, memverifikasi, menyampaikan, men, menabrak,
 menabung, menabur, menada, menafkahi, menafkai, menaggal, menagih,
 menahan, menahu, menaikan, menaikkan, menakutkan, menambah,
 menambal, menampung, menanam, menandatangani, menandatangani,
 menangani, menanganinya, menanggal, menanggani, menanggapi,
 menanggapi, menanggis, menanggulangi, menanggulangnya,
 menanggung, menanggungnya, menangkap, menannggal, menantang,
 menanyaka, menanyakannya, menanykn, menara, menari, menarik,
 menaruh, menasehati, menasihati, menata, menawan, menawarkan,
 menbuat, mencabut, mencaci, mencak, mencalonkan, mencantumkan,
 mencapai, mencari, mencarikan, mencatat, mencatat, mencegah,
 mencekung, mencelakakan, mencengangkan, menceritakan, mencetak,
 mencetakkan, mencetaknya, menciderai, mencintai, menciptakn,
 mencoba, mencolok, mencontoh, mencoreng, mencuci, mencukupi,
 mencurigai, menda, mendadak, mendafrarkan, mendaftar, mendaftarkan,
 mendaftarnya, mendagri, mendahulukan, mendambakan, mendampingi,
 mendanai, mendangkal, mendaatkan, mendapati, mendapatkannya,
 mendapt, mendarat, mendasar, mendasarinya, mendatangi, mendekati,
 mendengar, mendengarkan, mendengarnya, menderak, menderita,
 mendesak, mendetil, mendholimi, mendidik, mendidikseperti, mending,
 mendirikan, mendiskusikan, mendorong, mendownload, mendptkan,
 mendtgkan, mendukung, mendunia, mendut, menebang, menebangi,
 menebangnya, menegakkan, menegur, menehi, menejemen, menekan,
 menelan, menelepon, meneliti, menelpon, menempati, menempatkan,
 menempel, menempuh, menemuk, menemukan, menemukan,
 menengah, menentang, menentu, menentukan, menerangkan, menerapkan,
 menerbitkan, menerima, menerimah, menerjunks, menertibkan,
 menertibkannya, menertipkan, menerus, meneruskan, menetap, menetes,
 menewaskan, meng, mengabaikan, mengabarkan, mengabdi, mengabil,
 mengabulkan, mengacaukan, mengacu, mengada, mengadakan, mengadu,
 mengaduhkan, mengadukan, mengagendakan, mengahiskan, mengajak,
 mengajar, mengajukan, mengajukannya, mengakibatkan, mengakomodir,
 mengakses, mengaktifkan, mengaku, mengakui, mengakuinya, mengalah,
 mengalam, mengalami, mengalaminya, mengalir, mengalir, mengalir,
 mengalirnya, mengalirpun, mengalokasikan, mengamankan, mengambil,
 mengambil, mengambilkan, mengambilnya, mengampai, menganalisis,
 mengancam, mengandalkan, menganga, mengangah, mengangap,
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 mengangsu, mengangu, menganjurkan, mengantar, mengantarkan,
 mengganti, mengantisipasi, mengantre, mengantri, mengapdi,
 mengapresiasi, mengapung, mengara, mengarah, mengarahkan,
 mengartikannya, mengasih, mengasikkan, mengasuh, mengasuransikan,
 mengatasi, mengatasinya, mengatasnamakan, mengatur, mengaturnya,
 mengaudit, mengayomi, mengebor, mengecat, mengecek, mengeceknya,
 mengecewakan, mengecil, mengecilnya, mengedepankan, mengedit,

mengedukasi, mengejar, mengejutkan, mengelabui, mengelabui, mengelak, mengelola, mengeluarkan, mengeluarkan, mengeluarkan, mengeluh, mengeluhkan, mengeluhkn, mengelukan, mengelupas, mengemas, mengembalikan, mengemban, mengembangkan, mengemudi, mengemukakan, mengena, mengenahi, mengenakan, mengenakkan, mengenali, mengenali, mengenalnya, mengenang, mengendarai, mengentaskan, mengepel, mengeprint, mengerem, mengering, mengeroyok, mengerti, mengeruk, mengesahkan, mengesampingkan, mengetahuinya, mengetik, mengevaluasinya, mengfungsikan, menggaggu, menggagu, menggala, menggambil, menggandeng, mengganggu, mengganggu, mengganjal, mengganti, menggantung, menggantungkan, menggeber, menggelar, menggelembung, menggelora, menggembirakan, mengenakan, mengenakan, menggenangi, menggubris, menggukakan, menggulingkan, menggunakannya, menggunakan, menggunakan, menggusur, mengguyur, menghabiskan, menghadap, menghadapi, menghadiri, menghadirkan, menghakimi, menghalangi, menghambat, menghamburkan, menghampiri, menghancurkan, menghanpiri, menghapus, mengharap, mengharap, menghargai, mengharuskan, menghasilkan, menghaturkan, menghaturkn, menghemat, menghentikan, mengherankan, menghiasi, menghidupi, menghidupkan, menghijaukan, menghilang, menghilangkan, menghimbau, menghindari, menghindari, menghiraukan, menghirup, menghubungi, menghubungkan, mengibformasikan, mengidap, mengidentifikasi, mengihindari, mengijabah, mengijinkan, mengikat, mengikut, mengikuti, mengila, menginap, menginfokan, menginformasikan, menginformasikan, menginggit, menginggitkan, menginjak, menginput, menginstruksikan, mengintimidasi, menginvestigasi, mengira, mengirim, mengirimkan, mengirimkn, mengisi, mengiyakan, mengizinkan, mengkaji, mengkawatirkan, mengkhawatirkan, mengkhawatirkan, mengklaim, mengklaim, mengklarifikasi, mengkomunikasikan, mengkonfirmasi, mengkoordinasi, mengobati, mengobrak, mengobservasi, mengoffkan, mengotori, menguap, menguasai, mengubah, mengubungi, mengucur, menguji, mengulang, mengulangi, mengular, menguleg, mengulur, mengumpulkan, menggunakan, mengundang, mengundurkan, mengunjung, menguntungkan, mengunung, mengupayakan, mengupgrade, mengurai, mengurangi, menguras, menguris, mengurug, menguruk, mengurus, mengurus, mengurus, mengurus, mengurus, mengurusnya, mengusir, mengusulkan, mengusut, mengutamakan, mengutarakan, mengwatirkan, menikah, menikmati, menikmati, menilai, menimbang, menimbulkan, menimbulkan, menimbulkan, menimba, menindak, menindaklanjuti, menindaklanjuti, menindaklanjutinya, menindas, meninggal, meninggalnya, meninggal, meninggal, meninggalkan, meninggalpun, meninggikan, meningkat, meningkatkan, meninjau, menir, meniru, menit, meniup, meniupkan, menjabat, menjadikan, menjadwal, menjaga, menjahit, berjalan, menjalani, menjalankan, menajar, menjamur, menjangan, menjanjikan, menjawabgurunya, menjawabnya, menjd, menjelang, menjelaskan, menjelaskanpenyuluhan, menjengkelkan, menjernihkan, menjerumuskannya, menjijikan, menjorok, menjual, menjulang, menjulur, menjumpai, menjuntai, menjurai, menkonfirmasi, menolak, menolong, menonaktifkan, menonjol, menonton, menopang, menormalisasi, mensejahterakan, mensertifikatkan, mensosialisasikan, mensukseskan, mensupport, mensurvei, mensurvey, mensyaratkan, mental, mentang, mentari, menteri, mentertibkan, mentindak, mentok, mentri, mentup, menu, menuangkan, menuduh, menugaskan, menuggu, menunjukitasurabayayangtertib, menukarkan, menulis, menuliskan, menumbuhkan, menumouk, menumpuk, menunggak, menunggu, menunggui, menunggunya, menunjang, menunjukan, menuntut, menuntutnya, menur, menurun, menurunkan, menuruti, menurutnya, menutup, menutupi,

menyadari, menyakitkan, menyaksikan, menyaksikannya, menyala, menyalah, menyalahgunakan, menyalahi, menyalahkan, menyalakan, menyalanya, menyalurkan, menyambangi, menyambung, menyambut, menyampai, menyampaikn, menyampaikannya, menyampaikn, menyamperin, menyanpaikan, menyapaikan, menyapu, menyar, menyarahkan, menyaran, menyarankan, menyayangkan, menyebabkab, menyebabkan, menyebar, menyeberang, menyebrang, menyebrangi, menyebut, menyediakan, menyedihkannya, menyedot, menyegarkan, menyegerakan, menyejahterakan, menyekolahkan, menyelamatkan, menyelenggarakan, menyelenggarakan, menyelesaikan, menyelesaikannya, menyelesaikn, menyembelih, menyempatkan, menyempit, menyempitkan, menyemprotkan, menyenangkan, menyengat, menyenggol, menyepelekan, menyerahkan, menyerang, menyertai, menyertakan, menyesakkan, menyesuaikan, menyétel, menyétap, menyétrum, menyétting, menyétujui, menyewa, menyewakan, menyikapi, menyimpan, menyindirmuka, menyinggung, menyingkirkan, menyisakan, menyisihkan, menyita, menyodorkan, menyorot, menyuapi, menyuburkan, menyukai, menyulitkan, menyulutkan, menyumbat, menyurat, menyuruh, menyurvei, menyusahkan, menyushakan, menyusui, menyusul, menyusuri, mepet, meracang, meragukan, merah, merahnya, meraih, merajalela, merajarela, meralat, merambah, merangkap, merantau, merapikan, merapikannya, merasakan, merata, meratakan, meratanya, merauke, merawat, merayap, merazia, mercedes, mercon, mercure, mercury, merdeka, merealisasi, merealisasikan, meredam, merek, mereka, merekam, merekan, merekomendasikan, merelokasi, merem, merembet, meremehkan, merencanakannya, merenggut, merenovasi, merepotkan, merepotkn, meresahkan, meresahkn, meresap, merespon, merespons, meresponsnya, merevisi, mergoyoso, meringankan, merisaukan, merisi, merobohkan, merokok, merosi, merpati, merr, merrc, merropolis, merta, mertua, mertuaarmen, merubah, merugi, merugikan, merujuk, merupakn, merusak, merusakkan, mesigit, mesin, mesjid, mesti, mestinya, mesum, met, meter, meteran, meterannya, metodenya, metrologi, metropolis, metropolitan, meubel, mewah, mewajibkan, mewakili, mewaspadaai, mewujudkan, mewujudkannya, mey, meyampaikaan, meyerahkan, mg, mgancam, mgg, mggu, mgkin, mgkn, mahasiswa, mhn, mhon, mhs, mi, mibta, michael, midi, mie, miftachul, mihon, miilik, miin, miinn, mikir, mikro, miliar, miliaran, milik, miliki, miliknya, milk, milo, milyar, mimin, mimpi, minarsih, minat, mind, mindah, mindy, mineral, minggu, minggir, minggu, mingguan, minguu, mini, minim, minimal, minimarket, minimnya, minimum, mininum, minkan, minmisal, minn, minnik, minoritas, mintai, mintak, mintakan, mintanya, mintk, minto, minum, minuman, mio, mir, miras, mirawati, miring, miris, mirisnya, mis, misale, misdar, misi, misinya, miskin, misnadi, mitigasinya, mitra, mitrasi, mizan, mj, mjd, mk, mkasi, mkci, mkdh, mkm, mkqke, mks, mkds, mksh, mksiih, ml, mlah, mlai, mlaku, melakukan, mlam, mlanjutkan, mlas, mlebu, mlh, mlm, mm, mmalam, mmbawa, mmbერი, mmbერი, mmbéritahu, mmbéritau, mmbntu, mmbuang, mmbuat, mmbw, mmbwa, mmg, mminta, mmpunyai, mn, mna, mnanyakan, mnc, mncb, mndapat, mndapatkan, mndpt, mndptkan, mnertibkannya, mnetp, mngakui, mngalami, mngambil, mngeluhkan, mngerti, mngetahui, mngganti, mnggnti, mnggu, mnggunakan, mnginformasikan, mngjukan, mngkin, mngkn, mngosongkn, mngurus, mningglkn, mnjadi, mnjawab, mnju, mnjual, mnkh, mnrt, mnt, mnta, mnyampaikan, mnyatakn, mnyebabkan, mnyengat, mnyertakan, mnyimpan, mnyuruh, mo, mobil, mobile, mobilnya, mocca, moch, mochamad, mochammad, mochin, modal, modalnya, model, modern, modifan, modin, modul, modus, moejadi, moestopo, moga, moge, mogok, moh, mohammad, mohin, mohn, moho, mohob, mohol, mohom, mohon, mohondinas, mohonkan, mohonpenjelasanapabetul, mohpn, mohön, mojo, mojoarum, mojokerto, mojoklanggru, mojopahit, mokodompit, moleh, molen, molor, monalisa,

monash, mondar, mondok, money, monggo, mongondow, monil, monitor, monitoring, monorel, montor, monumen, monyet, moral, moratorium, more, morning, moro, morokembangan, moror, mosok, most, motboard, motivasi, motivasinya, moto, motong, motor, motornya, mpe, mputantular, mrah, mreka, mrk, mrka, mrngakibatkan, mrngigat, mrugikan, mrupakan, ms, msak, msalah, mscs, msi, msih, msjd, msjid, msk, mskipun, mslah, mslh, mslhnya, msuk, msyarakat, mt, mtnuwun, mtr, mtsn, mu, muak, muaknya, mual, mualaiiku, mualaikum, muamalat, muara, muat, muatan, mubadzir, mucharomah, muda, mudah, mudahan, mudik, mudiknya, mudin, mudjiono, mudlofar, mufida, mufidah, mufit, mungkin, mugo, muh, muhadi, muhamad, muhamadiyah, muhammad, muhammadiyah, mui, mujaer, mujenah, mujiono, muka, mukai, mukhamad, mukhlisin, mukti, mukul, mulawarman, mulia, muljono, mulsi, multiguna, multimedia, multiprofesi, multisarana, mulus, mulut, mulya, mulyanto, mulyo, mulyorejo, mulyosari, mumpung, munawaro, muncul, muncullah, munculnya, mundur, mundurin, mung, mungil, mungkin, mungkinkan, mungsing, mungurus, munir, muntoha, murah, mural, murid, murni, murup, musem, museum, mushola, musholah, musholla, musibah, music, musicnya, musik, musiknya, musim, musiman, musin, musisi, muslim, muslimin, musrenbang, musrifatul, musti, mustopo, musyawarah, mutasi, muter, muterin, mutiara, mutlak, mutu, muyosari, mw, mwakili, mwmbuat, mwnghidupkan, my, mz, maaaf, na, nabi, nabila, nach, nada, nadia, nadya, naek, naeknya, nafas, nafi, nafirin, nafkah, nagih, nahkan, naiki, naikkan, naiknya, nak, nakal, naked, nalendrawati, nama, namanya, nambah, nambal, nambangan, name, namen, nampak, namu, namunbelum, namunberkas, nang, nangis, nangka, nanya, nanyakan, nanyanya, napi, narasumber, narasumbernya, narik, nariki, narita, narkoba, narotomo, narrow, narsum, naruh, nasabah, nasi, nasib, nasibnya, nasional, nasoetion, nata, natek, native, naufal, naungan, nawawia, naya, nb, nbbgaimna, nda, ndableg, ndak, ndampingi, ndan, ndandani, ndi, ndik, ndilalah, ndk, ndodot, nds, nduk, nduwe, ne, necis, neck, nedho, needs, negara, negatif, negeri, negeribeberapa, negri, neh, neiltje, nek, nekat, nelanjutkan, nelayan, neli, nelpon, nemakan, nembak, nemu, nemui, nendi, nenek, neneknya, neng, nengikuti, nepotisme, nepotismennya, net, netep, netes, netizen, new, news, next, ng, ngabarin, ngabung, ngadain, ngadat, ngadu, ngagel, ngagelrejo, ngaglik, ngajak, ngaji, ngajuin, ngajukan, ngajukno, ngak, ngaku, ngakunya, ngalah, ngalahin, ngalir, ngambil, ngamuk², ngancam, nganggur, nganglik, ngangsu, nganjuk, ngantor, ngapain, ngapunten, ngarepe, ngasem, ngasih, ngatasi, ngatur, ngawi, ngawinan, ngawur, ngebor, ngebut, ngecek, ngecembeng, ngecor, ngedumel, ngelamar, ngeluarin, ngelug, ngeluh, ngelus, ngemplak, ngene, ngenesnya, ngenplak, ngenteni, ngeri, ngeribanget, ngeringkesi, ngerti, ngesong, ngetem, ngetik, ngeyel, nggal, nggawe, nggeh, nggih, nggihmohon, nggonku, nggrundel, nginap, ngindon, ngini, ngira, ngisi, ngk, ngl, nglamar, ngntar, ngobrol, ngomong, ngono, ngontrak, ngopi, ngotot, ngprint, ngrepoti, ngresiki, ngumpiin, ngtren, ngucuuuuur, ngundang, ngungsi, ngunu, nguras, ngurus, ngurusi, ngurusin, ngurusnya, ngurusx, ni, nia, nias, niat, niatan, niatnya, nice, nicu, night, nigroho, nih, nihil, nik, nikah, nikahterlegalisir, nikmati, nikmatus, niknonik, niknya, nilai, nilainya, nimbrung, nina, ning, ninggal, ninik, ninja, nip, nirmal, nirwana, nis, nisaul, nism, nitip, njaluk, njenengan, njepat, njop, nkri, nluranya, nm, nma, nnggih, nnt, nnti, nnunggu, noehan, noer, nogosoro, nohon, nol, nolak, nomer, nominal, nominalnya, nomor, non, noner, nongkrong, nootje, nop, nopel, nopember, normal, normalisasi, normalisasi, nostalgia, not, nota, notaben, notabene, notaris, note, notifikasi, notiket, nov, novalinda, novel, november, novianto, novidah, novita, novitasari, npwnya, npwp, npwpnya, nr,

nrimo, nss, ntah, ntar, nti, ntt, ntuk, nty, nugroho, nulis, numpang, numpuk, nunda, nunggu, nungguin, nunggunya, nungu, nunut, nuptk, nur, nurhasan, nuriyati, nurlela, nurmiah, nurmiahberbagi, nurul, nurut, nurwati, nuryudi, nusa, nusanindyah, nusantara, nuwon, nuwun, nuwunsewu, nwn, nwun, nwuun, nwuun, ny, nya, nyaa, nyadn, nyala, nyalakan, nyalanya, nyalapun, nyaman, nyamar, nyambung, nyampaikan, nyampe, nyampe, nyamplungan, nyamuk, nyamuknya, nyandar, nyari, nyata, nyatakan, nyawa, nyebrang, nyelesaikan, nyelipin, nyelonong, nyepi, nyerah, nyeri, nyetak, nyetel, nyewa, nyinyir, nyoman, nyumet, nyuruh, nyuwun, nyá, oasis, oayah, obat, obatnya, objek, obrakan, obt, obyek, oct, odong, oejalan, oendaftaran, of, off, office, offline, offroad, ofnya, often, ogah, oh, ohinder, oihak, oiya, ojo, ojok, ok, okay, oke, okee, okelah, okk, oknum, oknumnya, oknumperparkiran, oksigen, okt, oktavian, oktaviananto, oktavianus, oktavida, oktober, oktriza, ol, olah, olahraga, olaraga, ole, olehkarena, olek, oleng, oli, oline, olong, olor, ombusman, omelan, omongan, omongannya, omset, omsetnya, omzet, omzetnya, on, one, ongkos, ongky, onkine, onlie, online, onlineatau, onlinenya, onlinevsaya, onnya, ono, onok, ontel, onthel, ontime, open, oper, operasi, operasikan, operasional, operasionalnya, operasithn, operational, operator,opersi, operssi, opini, opnam, opname, opo, opoo, oprasional, optik, optimal, optimalkan, or, ora, orang, orange, orangnya, orangtua, orangtuanya, order, orderkan, ordonantie, orenz, organisasi, orgnya, orkes, orng, orthopedi, ortu, ortunya, osis, oso, osowilangun, otak, otaknya, otomatiis, otomatis, otoritas, ousorcing, out, outbond, outsourcing, outsourching, outsourcing, outsoursing, over, overlay, overload, ovtavian, ow, oxsy, oya, pa, pabean, pabjang, pabrik, pacar, pacaran, pacarkeling, pacarkembang, pacuan, pacul, pad, pada, padahala, padam, padamnya, padang, padat, padati, padatnya, padm, padmosusastro, padt, paduan, pafing, pagar, pagesangan, pagi, pagii, pagiii, pagimlm, paginya, paglima, pagu, paguyuban, paha, paham, pahaman, pahami, pahe, pahing, pahlawan, pahlawanku, pajajaran, pajak, pajaknya, pakah, pakai, pakaian, pakal, pakan, pakde, pake, pakek, paket, pakis, pakk, paksa, pakuwon, palak, palang, palangkaraya, palangnya, palem, palet, paliatif, palm, palsu, pam, paman, pameran, pampers, pamrih, pamurbaya, panas, pancaroba, pancasila, panci, pancoran, panda, pandan, pandang, pandangan, pandangannya, pandegiling, pandftaran, pandigiling, pandugo, panduk, panel, panen, pangan, panganan, pangat, panggah, panggil, panggilan, panggilannya, panggung, pangilan, pangkajene, pangkal, pangkalan, pangkas, panglima, panik, panin, panita, panitia, panjaan, panjangjiwo, panjangnya, panji, pantai, pantau, pantauan, pantauannya, pantengin, panti, pantura, panvingisasi, papa, papan, papandayan, papernya, paping, paprika, papua, parade, paraf, parah, parahnya, paralel, paramita, parawansa, parete, parfita, paripurna, paris, parit, pariwasata, pariwisata, park, parking, parkir, parkiraaan, parkiraaan, parkirannya, parkirnya, parkirp, parpol, partisipasi, partisipasinya, paru, pas, pasai, pasal, pasan, pasang, pasangan, pasangsedangkan, pasar, pasaran, pasarnya, pasca, paser, pasien, pasiennya, pasir, paskibra, pasokan, paspor, pasport, pasr, pasrah, pass, passpor, passport, password, past, pastian, pastikan, pastinya, pasukan, pasuruan, patah, patas, paten, patimura, patriot, patmosusastro, patok, patriot, patroli, pattimura, patua, patuh, patung, patut, paud, pautnya, paved, paving, pavingan, pavingisasi, pavingnya, pawai, payau, paypal, payung, pbb, pbi, pc, p cetakan, pcrkeling, pd, pdahal, pdahl, pdam, pdamnya, pdestrian, pdf, pdhal, pdip, pdk, peata, pebruari, pebruary, pecah, pecahan, pecat, pecel, pecerannya, peceren, pecindilan, pecinta, pedaftaran, pedagang, pedalaman, pedas, pedestrian, pedistribusian,

pedok, pedoman, pedot, peduli, peduli, pebaikan, peingatan, peesyaratan, peg, pegajian, pegang, pegangan, pegangnya, pegawai, pegawainya, peggerusan, peggiran, pegirian, peguna, pehatiannya, pejabat, pejalan, pejl, pejuang, pekal, pekan, pekarangan, pekat, pekerja, pekerjaan, pekerjaannya, pekerjaanya, pekerjaan, pekerjanya, pel, pelabuhan, pelajar, pelajaran, pelajaranpelayaran, pelajari, pelaksana, pelaksanaan, pelaksanaannya, pelaksanaannya, pelaksanaannya, pelaku, pelaluan, pelan, pelangan, pelangaran, pelanggan, pelanggannya, pelanggar, pelangaran, pelangi, pelapak, pelapisan, pelapor, pelaporan, pelaporannya, pelapornya, pelarangan, pelat, pelatihan, pelatihannya, pelaut, pelayan, pelayanan, pelayananan, pelayananannya, pelayananannya, pelayaran, pelebaran, pelecehan, pelek, pelengkap, pelengsengan, pelepasan, pelestarian, pelicinnya, peliharaan, pelimpahan, pelimpahannya, pelindung, pelk, pelopor, pelsysnsn, peltihan, peluang, peluit, pelunasan, pemadam, pemadaman, pemahaman, pemain, pemakai, pemakaian, pemakaman, pemakiran, pemaksaan, pemalsuan, pemalsuanolehpsns, pemalsuantanggal, pemancar, pemandangan, pemandian, pemanfaatan, pemangkasan, pemangku, pemantau, pemantauan, pemasanan, pemasangan, pemasangangan, pemasangannya, pemasukan, pematusan, pembaca, pembagian, pembagunan, pembagunannya, pembaharuan, pembakaran, pembandingnya, pembanginan, pembangunan, pembangunannya, pembantu, pembanugnan, pembaruan, pembasahan, pembasmi, pembatas, pembayar, pembayaran, pembayarannya, pembebasan, pembelajaran, pembeli, pembelian, pembelannya, pembelinya, pembenahan, pembenaran, pembentukan, pemberatnya, pemberdayaan, pemberi, pemberian, pemberitahuan, pemberitahuannya, pemberlakuan, pembersihan, pemetulan, pembiaran, pembiaransedangkan, pembiayaan, pembicara, pembinaan, pembkot, pemblokiran, pembongkaran, pemborong, pemborongnya, pemborosan, pembuangan, pembuangannya, pembuat, pembuataan, pembuatan, pembuatannya, pembuatan, pembuktian, pembantuan, pemda, pemecahan, pemegang, pemeliharaan, pemenang, pemenuhan, pemerasan, pemerataan, pemerhati, pemeriksaan, pemerintahan, pemerintah, pemerintah, pemerintahbukan, pemerintahnya, pemerintahoknum, pemerinthan, pemeruntah, pemesanan, pemicu, pemikiran, memilih, pemilihan, memilihmu, pemilik, pemilikny, pemiliknya, pemilil, pemilim, pemillik, pemimpin, peminat, peminjam, peminjaman, pemisah, pemkod, pemkos, pemkot, pemohon, pemohonan, pemohonapakah, pemoran, pemotong, pemotongan, pemprov, pemred, pemerintah, pemrograman, pemrosesan, pemrov, pemuda, pemukiman, pemukimanbpbk, pemukulan, pemungut, pemungutan, pemutakhiran, pemutihan, pemutusan, penahan, penambahan, penambalan, penampungan, penanaman, penangan, penanganan, penangananannya, penanganan, penangannya, penanggungan, penanggung, penanggungan, penantian, penarikan, penarikannya, penataan, penawaran, pencabutan, pencahayaan, pencairan, pencandang, pencapaian, pencari, pencarian, pencatatan, pencegahan, pencegahannya, pencegatan, pencerahan, pencerahannya, pencet, pencetak, pencetakan, pencil, pencitraan, penculikan, pencuri, pencurian, pendaftaran, pendaftaran, pendaftaran, pendaftar, pendaftaran, pendaftarannya, pendamping, pendampingan, pendanaan, pendangkalan, pendapat, pendapatan, pendataan, pendatang, pendatangnya, pendek, penderita, pedestrian, pendftaran, pendidik, pendidikan, pendidikannya, pending, pendingin, pendirian, pendistribusian, penduduk, penduduknya, pendukung, penebalan, penebangan, penegak, penegakan, penegakkan, peneguran, penekanan, peneleh, penelitian, penelpon, penempatan, penempatannya, penenrapan, penentu, penerangan, penerangana, penerangannya, penerapan, penerapannya, penerbit, penerbitan, penerbitannya, penerima, penerimaan, penertiban, penertibannya, peng, pengabdian, pengadaan, pengadaannya,

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 perparkiran, perpindahan, perpisahan, perpnjang, perpohon,
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 pertunjukkan, pertura, perubahan, perum, perumahan, perumnas,
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 peserta, pesing, pesisir, pesta, pesuruh, persyaratan, pet, peta,
 petak, petakan, petang, petani, petasan, petbaiki, petemon, pethok,
 peti, petinggi, petir, petok, petra, petrogas, petugas, petugasbiar,
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 phone, photo, fotografer, photographer, piala, pic, pick, picture,
 pidah, pidak, pidana, pidato, piggir, pihak, pihat, pijat, pikir,
 pikiran, pikti, pil, pilang, pileg, pilek, pilgub, pilih, pilihan,
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 pindahkannya, pindh, pindo, ping, pinggi, pinggir, pinggiran, pingin,
 pingir, pingpong, pinjam, pinjaman, pinjami, pinpinan, pintar,
 pintu, pipa, pipanya, piro, pirt, pisah, pisan, pisces, piye, piyeeee,
 pj, pjalan, pjka, pjlsan, pjr, pjs, pju, pjunya, pk, pkai, pkb, pke,
 pkerjaan, pkh, pkk, pkl, pklnya, pkm, pkms, pkn, plafon, plang,

planning, plant, plapon, plasa, plastik, plastiknya, plat, platuk,
 play, playanan, plaza, please, plegsega, plemahan, plengsega,
 plengseng, plengsengan, plester, plg, pln, plong, plosa, plosok,
 plu, plus, plz, plza, pm, pmakai, pmbngnannya, pmbuangan, pmi, pmk,
 pmohonan, pn, pncetakanbentuk, pncurian, pndftaran, png, pngendara,
 pngesahn, pngganti, pnghapus, pnghasilan, pngn, pngrukan,
 pngurusannya, pngurusan, pnh, pnjlsn, pnpb, pnpm, pns, pnssurabaya,
 pny, po, podho, podomoro, podotrisno, pogot, poh, pohon, pohondaun,
 pohonnya, poin, poinnya, point, pojok, pojokan, pojokannya, pokok,
 pokoknya, pol, polantas, polda, poli, poliklinik, polisi, polisinya,
 politeknik, politik, polll, polres, polrestabes, polri, polsek,
 poltekpel, polusi, pom, pomahan, pompa, ponakan, pondasi, pondok,
 pong, ponorogo, ponten, pontoan, poo, poor, pop, popok, porong,
 portable, portal, pos, posible, posisi, posisinya, positif,
 poskamling, posko, posnya, poso, possibly, post, posting, postingan,
 posyandu, pot, potensi, potensial, potnya, poto, photocopy, potong,
 potongan, potx, pp, ppat, ppdb, pph, ppi, ppid, ppp, ppupekerja,
 pr, praban, prancangan, prada, pradah, pradana, praditya, pragoto,
 praja, prakarya, praktek, prakteknya, praktik, praktis, pramadita,
 prambanan, pramuka, pranowo, prapanca, prapen, prapenn, pras,
 prasaan, prasarana, prastiyono, prastya, pratama, praturan, prayogo,
 praypdamsurabaya, precast, prediksi, prekompetision, preman,
 premanisme, premi, prepcom, presentasi, presiden, prestasi,
 prestasinya, preventif, preyek, prg, prhatiannya, prhatianya,
 pribadi, pribadinya, pribumi, prihah, prihal, prihatin, priksa,
 prima, prime, primer, prin, princes, prinsipnya, print, printernya,
 printnya, priok, prioritas, pripun, privacy, privasi, priyo, prkir,
 prnh, pro, proaktif, proaedirnya, problem, problematika, proc,
 procedure, process, prodent, prodi, producer, production, produk,
 produksi, produktif, produktifitas, produsen, proesnya, prof,
 profesi, profesional, profesionalitas, professional, profil,
 profile, profit, progam, program, programkan, programnya, progres,
 progresnya, progress, project, promo, promosi, promote, prona,
 propaganda, properti, property, propinsi, proposal, prose, prosedur,
 prosedurnya, proses, prosesnya, prosesya, prostitusi, proteksionis,
 protektif, protes, protokol, protol, proudcitizen, prov, provinsi,
 proyek, proyeknya, proyeksi, prr, prubahan, prudential, prusahaan,
 ps, psd, psdiii, psikolog, psikologi, psikologis, psikologisnya,
 psr, psswrd, psswrod, pt, ptc, ptgs, ptjsr, ptk, ptn, ptoyek, ptpn,
 pts, ptt, ptugas, ptugasnya, ptus, pu, puas, puasa, puasa, pub,
 public, publik, publikasi, publikasikan, publiknya, publish, pucang,
 pucangan, pucangsewu, pucsng, pudar, puhan, pujasera, puji,
 pukeemas, pukesma, pukesmas, pukis, pulang, pulangkan, pulangny,
 pulau, pulih, pulng, pulo, pulsa, puluh, puluhan, pumpungan, puncak,
 puncakny, pundi, punggiran, punggung, pungli, pungut, pungutan,
 pungutannya, puniko, puny, punyak, punyapun, pupns, pura, purabaya,
 purbaya, purchasing, puri, purna, purnama, purnawati, purnawirawan,
 purnomo, pusat, pusing, puskemas, puskesmas, puspa, pustu, putar,
 putaran, putat, puter, puteran, putih, putihnya, putra, putri, putro,
 putry, putugas, putung, putus, putuskan, puukul, pwrtanyaan, qowi,
 qs, qt, qta, quality, quick, quite, quote, qurban, qurrotu, qwxgr,
 qx, ra, raba, rabb, rabu, rachmad, rachman, rachmat, radio, radit,
 radius, rafif, rafli, raga, ragu, raharja, rahasia, rahayu, rahma,
 rahmadhi, rahman, rahmat, rai, raib, rajasa, rajawali, rajin,
 raksasa, rakyat, ralat, ramadha, ramadhan, ramah, ramai, rambu,
 rambut, rambutan, rame, rampung, rancangan, rancu, randu, rangakh,
 rangka, rangkah, rangkaian, rangkap, ranmor, ranting, rantingnya,
 rapat, rapatlah, rapi, rapika, rapikan, rapor, raporku, rapot, rapuh,
 rasakan, rasasnya, rasha, raskin, rastra, rasulullaah, rata, rather,

ratingnya, ratna, ratu, ratus, ratusan, rawa, rawan, rawannya, rawasan, rawat, rawon, raya, rayajalan, rayan, rayanya, rayap, rayon, rayyan, razia, rb, rban, rd, rdk, re, reach, ready, realisasi, realisasikan, realisasinya, realise, recheck, recom, rekomendasi, record, reda, redita, referensi, reformasi, refresh, regard, regards, regency, register, registered, registrasi, registrasj, regulasi, reguler, rehabilitasi, rejo, rejosari, rek, reka, rekam, rekaman, rekan, rekanan, rekap, rekening, reklame, rekom, rekomendasikan, rekomendasi, rekondisi, rel, rela, relatif, relation, releasing, relevan, religi, rel, relokasi, remaja, remang, rembang, rembug, rembugku, rembuk, remi, remo, renang, renc, rencana, rencananya, rendah, rendahan, rendy, reni, renovasi, renstra, rental, rentan, rentang, rentenir, reog, reparasi, reply, repost, repot, repotkan, reproduksi, reptil, republik, resah, resapan, resek, resepan, reservasi, reset, resi, residence, residents, residu, resiko, resmi, resmikan, resminya, respirasi, respon, respond, responding, responnya, respons, response, responsenya, responsibility, responsibilitynya, responsifnya, responsip, respont, rest, restibusi, resto, restoran, restu, retak, retina, retribusi, retribusinya, return, revisi, revitalisasi, revolusi, revolusimental, reyes, reza, rezalino, rezalinoecky, rgds, rhisma, ri, ria, riadi, rial, riau, riba, ribet, ribetnya, ribu, ribuan, ribut, ricas, ricek, richard, rico, ricuh, ridak, ride, ridwan, rifa, rikhul, rilisnya, rima, rimbun, rimbunnya, rina, rinci, rincian, rindak, rindang, rindu, ringan, rini, rintik, rio, riol, risa, riset, risih, risiko, riski, rismaa, rismaaa, rismabisa, rismaharini, rismaharinisbarnya, rismaku, rismawati, risqi, rivera, riwa, riwayat, riwi, riyaya, rizal, rizka, rizky, rk, rklkodvt, rl, rm, rmhnya, rmr, road, roads, robek, robert, robok, robokkan, rochman, roda, rodanya, rohmah, rohman, rohyuwana, rojo, rokan, rokok, rokokkan, rolak, romadhon, romadlon, rombeng, rombong, rombongan, romli, romokalisari, romokalusari, rompi, rompingnya, ronggolawe, rongsok, rongsokan, roni, ronny, rono, rosana, rosmala, rosokan, rosyid, roti, rowo, royal, royong, rozy, rph, rprb, rprban, rq, rr, rs, rsal, rsdk, rsi, rsia, rsk, rss, rsud, rsws, rt, rth, rtingga, rtku, rtnya, rtrw, rtvdan, ruang, ruangan, ruangannya, ruas, rubah, rubbish, rubella, rubuh, rucitra, rudiyanto, rudy, rudyanto, rugi, rugii, rugikan, ruginya, ruislak, rujak, rujakny, rujaknya, rujukan, rujukannya, rujukkan, rukem, ruko, rukun, rule, rully, rumah, rumahan, rumahku, rumahnya, rumahrumah, rumahsakit, rumdis, rumit, rumitkah, rumitnya, rumo, rumput, runcing, rungkut, runtuh, runtuh, runu, rupa, rupane, rupiah, rusa, rusak, rusaknya, rusakterkelupas, rusiana, rusuh, rusum, rusun, rusunawa, rusunawasebnat, rutan, rute, rutanya, rutin, rutinitas, ruwet, ruwt, rw, rwny, ry, rzdvkq, sa, sabang, sabar, sabilillah, sabilillah, sabrangan, sabre, sabtu, sabuk, sadar, sadari, safety, sah, sahabat, saham, sahid, sahur, saiful, saim, sajabisa, sajakah, sajakenapa, sak, sakinah, saking, sakit, sakitan, sakitnya, sakjane, saksi, saksitemanya, sakura, sal, sala, salah, salahkan, salahsatunya, salain, salalu, salam, salampedulisurabaya, salasa, salatiga, saldo, sales, salim, salinan, salju, saluran, salurannya, saluranya, salut, salutan, samad, samakan, samamohon, samanya, samapai, samarinda, samasekali, sambikerep, sambirogo, sambiroto, sambung, sambungan, sambut, sambutan, samoai, sampah, sampahny, sampahnya, sampaian, sampaikn, sampaui, sampang, sampau, sampe, sampean, sampei, sampek, sampeyan, samping, sampingny, sampingnya, sampoerna, sampun, sampurna, samroh, samsat, samsung, samudra, san, sanak, sandi, sandung, sandungan, sang, sangat, sangatmengganggu, sanget, sanggat, sanggup, sangka, sangkar, sangkut, sangsi, sanitasi, sanksi, santa,

santai, santika, santoso, santri, santun, santunan, santunnya, sanyat, sanyo, sanyopun, sapa, sapai, sapawarga, sapawargasby, sapengen, sapi, sapu, sapudi, sar, sarah, saran, sarana, sarang, sarankan, sarannya, saranya, sarat, sari, sariban, sarjana, saronojiwo, sasaran, sasarnya, sastrawirya, sat, sata, satelit, satellite, satgas, satgasnya, satjadibrata, satlantas, satlinmas, satpam, satpas, satpol, satpoll, satpolpp, sattar, satu, satuan, satuny, satunya, satupun, satuunya, satuxnya, satwa, saudaa, saudara, saudaraku, saur, save, saw, sawa, sawah, sawahan, sawang, sawentar, sawit, sawo, sawunggalig, sawunggaling, sawunggalling, sawunhgaling, say, saya, sayaa, sayabuat, sayaiya, sayaloh, sayang, sayangi, sayangkan, sayangnya, sayapun, sayasaya, says, sayur, sayuran, sb, sbagai, sbb, sbelum, sbelumnya, sbesar, sbg, sbgai, sbgmn, sblah, sblelum, sblh, sbm, sblmny, sbmnya, sbmunya, sbmumx, sbm, sbmnya, sbmptn, sbnarnya, sbnrnya, sbntr, sbstr, sbulan, sbu, sbu, scan, scara, schooling, scr, scra, screening, screenshoot, sd, sdah, sdang, sdangkan, sdg, sdgkan, sdgkn, sdi, sdikit, sdikitkami, sdit, sdit, sdib, sdm, sdmnya, sdn, sdr, sdri, se, seabreg, seadanya, seakan, seandainya, searah, season, sebabkan, sebagaian, sebanding, sebanyak, sebar, sebarakan, sebatangkara, sebatas, sebayak, sebelah, sebelahnya, sebelumaya, sebelummnya, sebelumya, sebelun, sebenar, sebenarny, sebenernya, sebentar, seberang, seberangnya, sebesar, sebesarnya, sebesr, sebetul, sebetulnyakok, sebgelumnya, sebidang, seblm, seblmny, seblmnya, sebnayak, sebrang, sebrangnya, sebulan, sebutkan, secemerlang, secepat, secepatnya, second, secra, secuul, security, securitynya, sedalam, sedan, sedang, sedangkan, sedangkan, sedangkkn, sedap, sedayu, sedekah, sederajat, sederhana, sedge, sediakan, sedianya, sedih, sedihkan, sedihnya, sedikitpun, sedot, sedulur, see, seems, seen, seenak, seenakanya, seenggak, segan, segar, segara, segaran, segel, segelintir, segenap, segeradi, segerah, segerakan, segi, segini, segitu, segituada, segra, segunting, segwra, seh, sehabis, seharga, sehari, seharian, seharisnya, seharunya, seharus, sehat, seharga, sehingg, sehubungan, sehungan, seikhlasnya, seikhlasnya, seiko, seiring, seizin, sejahtera, sejahterah, sejalan, sejarah, sejatera, sejawat, sejelas, sejenis, sejenisnya, sejujurnya, sejuk, sek, sekaku, sekaliiii, sekaliseperti, sekarang, sekarnag, sekarnsg, sekedar, sekejap, sekelompok, sekeluarga, sekelurahan, kembalinya, sekenanya, sekertaris, sekertarisnya, seketa, seketarisnya, sekian, sekilas, sekita, sekitaran, sekitarna, sekitat, sekitr, sekligus, sekokannya, sekolah, sekolahan, sekolahnya, sekolahperijinan, sekota, sekrang, sekrestartis, sekretariat, sekretaris, sekretarisnya, seksi, seksual, sektor, sektoral, sekumpulan, sela, selagi, salam, selamat, selamatkan, selambat, selanat, selang, selangit, selanjutnya, selaras, Selasa, selatan, selebaran, selebihnya, seleksi, selebar, selengkapnya, selep, selesai, selesaibisa, selesaikan, selesainya, selesai², selese, selese, seleseikan, selesekan, seling, selisih, sellamat, selmat, selokan, selokannya, selokkan, selokonnya, seluas, selutut, selva, semacamnya, semahal, semak, semalam, semalang, semalem, semampir, semangat, semangatnya, semanggi, semantara, semampir, semarak, semarang, sembada, sembako, sembarang, sembarangan, sembari, sembubiyi, sembuh, sembunyi, sememi, semen, semena, semenjak, sementar, semerawut, semesta, semester, semesteran, semestiny, semestinya, semi, semimi, seminar, seminggu, semingguan, semoga, semolo, semolowaro, semolowaru, sempatkan, sempet, sempit, sempit, sempit, sempit, sempurna, semrawut, semuladiaspal, semut, senam, senang, senantiasa, senantiyasa, sendiri, sendok, senen, seneng, seng, sengaja, senggang, sengketa, sengsara, seni, seniar, senilai,

seniman, senin, senior, seno, senonoh, sensitif, sensornya, sentimeter, sentosa, sentra, sentral, senyum, seoaruh, seorg, seornag, sep, sepada, sepadan, sepakat, sepanduk, sepanjangh, separah, separo, separoh, separti, separuh, sepatu, sepda, sepeda, sepekan, sepele, sepengatahuan, sepengetahuan, sepenuh, sepeserpun, sepetember, sepi, sepinggang, sepitank, sepitdk, sept, september, septirian, sepuh, sepulang, sepuluh, sepurane, sepurone, seputar, seputaran, seraaammmmm, serabutan, seragam, serah, serahi, serahkan, seram, serangan, serangga, serasa, seraya, serba, serbaguna, serbu, serbuan, serbusedekah, seremonial, serempet, serempetan, serentak, seret, seri, seribet, seribu, sering, seringkali, serius, serobot, sertakan, sertifikat, sertifikasi, sertifikat, sertifikatkan, sertifikatnya, sertipikat, sertu, serumit, seruni, serup, seruwet, server, servernya, serves, servia, service, serviks, servis, sesaama, sesak, sesal, sesalkan, sesampainya, sesdhnya, sesempurna, seseorg, seseorh, seseorng, sesi, sesimpel, sesopan, sesosok, sesuagu, sesuai, sesuaikan, sesudahny, sesungguhnya, sesusah, set, setahu, setahun, setahunan, setail, setalah, setan, setapak, setara, setaraa, setasiun, setau, setaun, seteah, setelahnya, setelh, setengah, setengahnya, setia, setiapnya, setiawan, setidak, seting, setinggi, setingkat, setiowidayoga, setisp, setjen, setlh, setngah, setopan, setoran, setro, setrum, setting, setuju, setujuui, setyawan, setyo, setyono, setyowati, seumpama, seumur, seusia, sewa, sewajarnya, sewanya, sewedi, sewenang, sewenangny, sewot, sewu, sex, seksual, seyogyanya, sg, sgala, sgera, sgitu, sgla, sgr, sgra, sgt, sh, shalallaahu, shalat, shame, shanghai, shangrilla, share, shared, sharing, shark, sheehan, sheldy, shelly, sheraton, shgg, shgga, shift, shingga, shisha, shit, shm, shock, shohibul, sholat, sholawat, sholeh, sholeha, shopping, should, showroom, shrsny, shubuh, sia, siaga, siang, siamg, siang, siangan, siangnya, siapakan, siapanya, siapkan, siax, siba, sibuk, sidak, sidang, sidarti, side, sidharta, sidik, sido, sidoarjo, sidodadi, sidoluhur, sidomulyo, sidomulyoa, sidonipa, sidonipah, sidorame, sidorejo, sidoresmo, sidorjo, sidosermo, sidotopo, sidotpo, sidoyoso, sie, sifat, sifatnya, sifaul, sift, sigap, sigapnya, sigit, sigma, sign, signifikan, sih, sihh, sijadikan, sik, sikap, sikapi, sikatan, sikemanakan, sikom, sikon, siktgz, sila, silahkan, silang, siloam, sim, simatauw, simbolon, simo, simogunung, simohon, simokerto, simokwagean, simolawang, simomulyo, simorejo, simorejosari, simosidomulyo, simp, simpan, simpang, simpatisan, simple, simpul, simultan, sinar, sinarnya, since, sinergi, sing, singapore, singapura, singgah, singgasana, singgih, singkat, singkatan, single, sinkron, sinkronisasi, sinkronkan, sinoman, sinten, sintetis, sinyap, siola, siolanya, sip, sipa, sipil, sipilnya, sipinggiran, sipp, siptgz, sir, siri, sirih, sirinenya, siring, sirkuit, sirkulasi, sisa, sisi, sisingamangaraja, siso, sistem, sistematika, sistemnya, sister, sistim, siswa, siswanto, siswi, sita, site, siti, situ, situasi, situasinya, situbondo, situs, situsnya, siujk, siup, siupnya, siur, siwalan, siwalankerto, sja, sjak, sjk, sjkah, sk, skala, kali, skalian, skaligis, skarang, skate, skatepark, skck, skg, skhun, skill, skitar, skitr, skitrnya, skl, sklh, skli, skm, skola, sekolah, skot, skpd, skr, skrang, skripsi, skrk, skrng, skrt, sks, skt, sktm, sktr, sktrnya, sktt, sku, sky, skyvision, slah, slain, slalu, slama, slamat, slamet, slauran, slesai, slesaiakn, slh, slip, sll, slm, slmat, slmt, slsai, slta, sltp, slum, sm, sma, smakin, sman, smapah, smart, smg, smga, smile, smk, smkn, smn, smntra, smoga, smp, smpah, smpai, smpaikan, smpat, smpe, smpek, smph, smpn, sms, smu, smua, smw, sndiri, sndr, sngat, snggup, sngt, sni, snm, snmptn, so, soalnya, soale, soalnya, soalex, sobek,

sobekan, socmed, sodakoh, sodara, sodok, soedirman, soedjito, soehita, soekarno, soekarwo, soekristian, soemarmi, soenjoto, soepratman, soerianto, soetomo, soetrisno, soewandhi, soewandhie, soewandi, soewardi, soewoyo, soft, softfile, softkopinya, software, sok, soka, sokbicara, soko, soleha, soleman, solo, solosi, solusi, solusiny, solusinya, solutif, solutions, solve, sombo, sombong, some, song, sono, sonokwijenan, soon, sop, sopan, sopir, sopo, sooredijadikan, soresamping, sori, sorpin, sos, sosial, sosialialisasi, sosialisasi, sosialisasikan, sosialisasinya, sosialnya, sosmed, soto, sotware, sound, source, souvenir, sowan, space, spai, spanduk, spanduknya, spanjang, spasi, spbu, spd, speak, speaker, speaking, speed, spek, spekaer, spekear, speknya, speleh, sperpart, sperti, spertinya, spesial, spesialis, spesifik, spesifikasi, spg, spidol, spion, spirit, spjg, spm, spmall, spngtahuan, sponsorship, spontan, sporadik, spp, spph, sppl, sppnya, sppt, sprin, spring, sprt, sprti, sprtix, spt, sphidrant, spy, square, srb, srby, srbya, srg, srh, sri, srikana, sring, sriti, sriwjaya, srjak, sroko, srt, srta, sru, sruh, ss, ssalah, ssaya, ssh, ssikit, sslamat, ssp, ssw, sswsblmnya, st, stabil, stack, stadion, stadulium, staf, staff, staffnya, stamper, stan, stand, standar, standardisasi, standarnya, standart, standartnya, standnya, starbuck, start, startnya, stasiun, station, statistik, status, statusnya, stefanus, stel, setelah, stella, stelma, stempat, stempel, stent, step, stepbystep, stepler, steril, steven, stgh, stiap, stiker, stikes, stikom, still, stlah, stlh, stm, stmj, stmpt, stnk, stok, stop, stopan, strateginya, strategis, stren, strengthening, stres, stress, strong, strtgz, struktur, stts, sttus, stu, student, studi, studies, studio, study, styaningsih, suami, suaminy, suaminya, suandari, suara, suaranya, suarasurabaya, suasan, suasana, sub, subekti, subjek, submit, subsidi, subuh, subur, sucah, sucf, such, suci, suda, sudan, sudarmanto, sudetan, sudh, sudi, sudinya, sudirman, sudut, suewandi, sugeng, sugiarti, sugihan, sugiman, sugiono, sugiri, sugito, suhonggo, sujiati, suka, sukai, sukarela, sukarno, suket, sukirman, sukma, suko, sukolilo, sukomanunggal, sukses, sulaiman, sulam, sulawesi, suliati, sulistiorini, sulit, sulitnya, suliyati, sulsel, sultan, sulton, sulung, sumarsinatin, sumatera, sumatra, sumbang, sumbangan, sumbangsih, sumbatan, sumber, sumberan, sumbernya, sumberrejo, sumenep, sumoharjo, sumolowaru, sumpelen, sumur, sumurwelut, sumut, sunan, sunarjo, sunaryo, sungai, sungguh, sungguhlah, sungkan, sungkono, suntik, suntoro, sunyi, sup, supardi, supeltas, supeltasnya, super, superindo, supir, suplai, suport, supporter, supoyo, supply, support, suprapto, supri, supriadi, supriatin, suprijanto, suraabaya, surabay, surabaya, surabayaa, surabayaapakah, surabayabnyk, surabayamohon, surabayaterima, surabayaterkait, surabayatertibdisiplin, surabaya, surabyaa, suram, suramadu, surat, suratnya, suratpemutusan, surbaya, surely, surfay, surganya, suri, surijono, suroboyo, suroboyoan, suroboyoku, suroboyorek, suromadu, suropati, suru, suruf, suruh, suruhan, surut, surutnya, survei, survey, surveyor, surya, suryo, susah, susahnya, susani, susanti, susanto, susasana, susila, suskalak, susn, suspensi, suster, susu, susun, sususn, sutarno, suterejo, sutomo, sutopo, sutorejo, sutrisno, suurabaya, surat, suwandi, suwanto, suwardi, suwarti, suwene, suwidak, suwon, suwun, suyanto, suyantoreni, suzana, suzuki, swadaya, swah, swakelola, swarane, swasta, swastanisasi, sweeping, swmi, swn, swt, syafiul, syahriyah, syara, syaraf, syarat, syaratanya, syaratnya, syaratnys, syaratx, syariah, synjd, system, systemnya, syukur, syukurlah, sàmpai, ta, taat, tab, tabayyun, tabep, tabloid, tabrakan, tabungan, tabur, taekwondo, tagas, tagihan, taguran, tah, tahap, tahapannya,

tahu, tahukah, tahun, tahunan, tahunnya, tahunya, tajam, takbir, takmir, takon, taksi, takut, takutkan, takutnya, talenta, tama, taman, tamann, tambahan, tambahi, tambahrejo, tambak, tambakasri, tambakrejo, tambaksari, tambakwedi, tambal, tambalan, tambalannya, tambang, tambangboyo, tambhan, tampang, tampil, tampilan, tampilannya, tamu, tanah, tanahnya, tanam, tanaman, tanamanpun, tanami, tananman, tanda, tandai, tandatangan, tandaterima, tandes, tandon, tangan, tangani, tangannya, tanggapan, tangerang, tangga, tanggal, tanggalnya, tanggani, tanggap, tanggapan, tanggapannya, tanggapanya, tanggapi, tanggapin, tanggapn, tanggl, tanggul, tanggulangi, tanggung, tanggungan, tanggungjawab, tangkap, tangki, tangkis, tangsi, tanhgal, tanjakan, tanjung, tanjungsari, tanki, tante, tanudjaja, tanyak, taon, tapak, tapaksiring, tapari, tapd, tapii, tapin, tapu, tarakan, tarawih, target, tari, tarif, tarifnya, tarik, tarikan, tarip, taripnya, taruh, taruhan, taruna, taryana, tas, taspen, tasyakuran, tata, tatakota, tatananny, tatang, tau, taubah, taufan, taufik, taufiq, taun, taunya, tawa, tawangsari, tawarkan, taxi, tayak, tayakan, tayamum, tayangan, tb, tba, tbk, tbm, tbp, tbsari, td, tdak, tdi, tdidak, tdinya, tdp, tdtngn, tdup, tdur, team, teatrikal, tebal, terbang, tebasan, tebu, tebus, tech, tefdaftar, tega, tegal, tegalsari, tegaskan, teguh, tegur, teguran, teima, tekan, tekanan, tekel, tekhnis, teknik, teknis, teknologi, teko, teks, tekun, teladan, telan, telantarkan, telat, telcom, teledor, telepon, telekomunikasi, telephone, telepon, telepun, telfon, telinga, teliti, telkom, telor, telpnkan, telpon, telpun, teluk, telur, telusuri, tema, teman, temannya, tembaan, tembel, tembelan, tembok, tembus, tembusan, temen, temenan, tempati, tempatkan, tempatlah, tempatnya, tempe, tempel, temperamen, tempo, temponya, tempramen, tempt, tempuh, tempurejo, temui, temukan, tenaga, tenaganya, tenang, tenant, tenda, tendanya, tender, tengah, tengang, tengg, tenggang, tenggara, tengger, tenggilis, tenggilismejoyo, tenggumung, tengok, tenpat, tentara, tentram, tentukan, tentuny, teparnya, tepatnx, tepatnya, tepatx, tepi, tepian, tepinya, tepon, ter, tera, terabaikan, terakhr, terakreditasi, teraliri, teramat, terampas, terancam, terang, terangkat, terangkut, terantuk, terapkan, teras, teraspal, teratai, teratas, teratasi, teratur, teraturanya, terawat, teraweh, terbaca, terbahak, terbaik, terbaiknya, terbakar, terbalik, terbang, terbangun, terbantu, terbaring, terbaru, terbatas, terbawa, terbebani, terbedung, terbengkalai, terbentang, terbentuklah, terbentuknya, terbentur, terbesar, terbiasa, terbilang, terbit, terbitan, terbitkan, terbitnya, terblokir, terbuang, terbuka, terbukti, terburu, tercabut, tercantum, tercantum, tercantumkan, tercatat, tercecer, tercemar, tercetak, tercinta, tercipta, terciptanya, terdaftar, terdampak, terdata, terdekak, terdelete, terdengar, terdepan, terdeteksi, terdistribusi, terdownload, terduga, terdzalimi, terdzolimi, terealisasi, teregister, teregristasi, terekam, tereleasikan, terelialisasi, terendah, terendam, terentry, tergabung, tergagu, terganggu, teranjat, tergantung, tergenang, tergenangi, tergenangnnya, tergerusnya, tergesa, terganggu, tergoda, tergolong, terguyur, terhalang, terhalangi, terhambat, terhambatnya, terhapus, terharmat, terhdp, terhempas, terhenti, terhindar, terhitung, terhormat, terhubung, teriak, teriakan, teriama, terikasih, terikat, terim, terima, terimah, terimakan, terimakasih, terimakasih, terimakasihh, terimakasihii, terimakasih, terimakasih, terimakasihh, terimakasih, terimanya, terimbak, terimkaasih, terimakasih, terimksh, terimmakasih, terinakasih, terinci, terinspirasi, teriring, terisi, terisis, terjaga, terjalin, terjalina, terjamah, terjamin,

tranferan, tranparan, trans, transaksi, transfer, transiit, transparan, transport, transportasi, trantib, trap, trash, travel, traveling, travelled, trayek, trbit, treimaksih, trekan, trem, trenggalek, trenggilis, trerima, trganggu, tri, tria, trif, trim, trima, trimah, trimakasi, trimakasih, trimaksih, trimkasih, trimksh, trims, trimss, trimz, trip, tripartit, trirismaharini, triyogo, trjadi, trkait, trlalu, trlambat, trlbih, trlebih, trm, trmaksh, trmkasih, trmksh, trmkasih, trmpatnya, trmsuk, trnyata, trnyt, trobel, tronton, trotar, trotoar, trotoarnya, troubel, trouble, trrsebut, trrtib, trs, trsbt, trsbut, trsebut, trtulis, tru, truck, truk, truknya, trunojoyo, trutama, try, tryout, tsbmengingat, tsbmohon, tsbt, tsbut, tselamat, tsh, tsulatsi, tt, tta, ttap, ttapi, ttd, ttep, ttga, ttp, ttpi, ttpny, ttrims, tu, tua, tuah, tuai, tuaian, tuan, tuanya, tuastir, tubanan, tubuh, tuch, tuduh, tugas, tugasnya, tugu, tuh, tuhan, tuju, tujuan, tujuannya, tujuanya, tujuh, tujukan, tuk, tukang, tukar, tulang, tulip, tulis, tulisan, tulisane, tulisannya, tuliskan, tulung, tulungono, tumah, tumbang, tumbuh, tumbuhan, tumbuhnya, tumpah, tumpang, tumpukan, tuna, tunai, tunanetra, tunda, tundaektp, tungakan, tunggakan, tunggal, tunggu, tunggu², tunjangan, tunjukkan, tunjungan, tuntas, tuntaskan, tuntun, tuntutan, tupai, tupoksi, tupoksinya, turi, turis, turmudi, turn, turun, turunan, tutp, tutup, tutupi, tutupin, tutupnya, tuwowo, tv, tvri, tvrxy, tw, twitter, tx, ty, tya, uang, uangnya, uangpdhl, uanh, uas, ubah, ubaya, ubayaantara, ubi, ucapakan, ucapan, ucapkan, ucapkn, udan, udang, udara, ugal, ugalan, ugm, ugo, uinsa, ujan, uji, ujian, ujuan, ujung, ujungnya, ujuan, uk, ukl, ukm, ukt, ukur, ukuran, ukurannya, ukuranya, ulah, ulan, ulang, ulangan, ulangtahun, ulasan, ulat, ulatnya, uleg, ulegnya, ulek, ulis, ulta, ulum, ulung, uluran, um, umat, umatnya, umbul, umk, umkm, umr, umroh, umukan, umumkan, umur, umurnya, un, unair, unbk, undaan, undang, undangan, undangannya, under, underpass, undian, undip, unduh, undur, uneg, unek, unesa, ungaran, unggah, unggas, unggulan, ungkapan, unhtuk, unit, unitnya, units, univ, universitas, university, univrsta, unkm, unmer, unsur, unt, untag, untik, untk, untuj, untung, untunglah, uotz, up, upacara, upah, upaya, upayanya, update, updatecetak, updated, upeti, upkan, upl, upload, uploadnya, upn, upt, uptb, uptd, uptsa, uraian, urakan, urban, urgensi, urgent, urgentl, urinoir, urip, uripsumoharjo, urug, urugan, urukan, urukannya, urun, urus, urusan, urusannya, uruskan, urusnya, urut, urutan, ury, us, usaha, usahanya, usahaku, user, username, usha, usia, usianya, usman, usul, usulan, usut, uswah, utama, utamakan, utamanya, utang, utangan, utara, utarakan, utilitas, utnk, utuk, uturn, uu, uwes, uwm, va, vaksin, vaksinasi, valet, valid, validasi, vanantia, vandalisme, vasum, vc, vcntiusrkzt, vegetasi, velisa, velum, vendor, venezuelan, veri, veridikasi, verifikasi, verifikasinya, vernando, versi, vertigo, very, veteran, vi, via, viaduct, vibro, victor, victory, video, videotron, view, vihara, vii, viii, villi, vinsensius, violation, virayanti, visi, vision, visitors, visual, vita, vital, viva, vokasi, volley, volume, volumene, volumenya, vonis, vs, wa, waaaaww, waalaikum, waalaikumsallam, waalaikumussalaam, wabah, wabarakaatuh, wabarakatu, wabarakatuh, wabarokatuh, wabil, wacana, wach, wachid, wadah, wadhul, wadiya, waduk, wadul, wadulan, wadulkan, wadullan, wae, wafat, wabh, wahidin, wahyu, wahyudi, waiterss, waiting, wajah, wajahnya, wajar, waji, wajib, wajibkan, wakil, wakkil, waktu, waktux, wakyu, wal, wala, walafiat, walaikum, walaikumsalam, walhasil, wali, walikota, walikotaku, walimurid, walk, walopun, walupun, wana, wang, wangsa, wanita, wapo, warahmatullaahi, warahmatullahi, warahmatuwa, waralaba, waras, warda, wargaanaknya, wargakah, wargakarena, wargamu, warganya,

wargapun, wargawarga, wari, waring, waringin, waris, warisan,
 warkop, warming, warna, warnanya, warnet, warning, warohmatullohi,
 waru, warugunung, warung, warungnya, warung toko, waruyang, was,
 wasalammualaikum, wasalamualaikum, wasallam, wasana, wash, washlap,
 waspada, waspadai, wassalam, wassalammualaikum, wassalammualaikum,
 wassalamu, wassalamualaikum, wassalamualaikumwrb, wassalamualikum,
 wassallam, wassallamualaikum, waswas, watak, water, waterpass,
 watga, watt, watung, wawacara, wawww, wayah, wayan, wb, wc, web,
 webite, websita, website, websitenya, websitesapwarga, wedi,
 weekend, wejhang, welcome, well, welut, wenang, werda, wes,
 western, wetan, wetanpemerintah, wewenang, what, which, who, why,
 wib, wibiseno, wibisono, wibowo, widiatmoko, widodaren, widodo,
 widya, wiffinya, wifi, wifinya, wiguna, wih, wijaya, wijayanto,
 wijono, wil, wilangan, wilangan, wilatah, wilayah, wilayahnya,
 winda, window, windows, windu, windos, wingi, wira, wirasasta,
 wiratno, wirausaha, wirawati, wiri, wis, wisata, wisatawan, wishes,
 wisma, wisman, wismo, wisnu, witoyo, wiyung, wkt, wktu, wl, wlaupun,
 wlikota, wna, wni, woelan, woiiii, wokeyy, wonkkromo, wonoayu,
 wonoclo, wonocolo, wonokitri, wonokromo, wonokusumo,
 wonokusumoterkesan, wonorejo, wonosari, wonten, world, worst, would,
 wow, wp, wr, wrg, wrga, wslkm, wtc, wtctg, wuahh, wudhlu, wudhu,
 wujud, wulandari, wushu, www, xi, xib, xii, xiii, xiv, xix, xl, xm,
 xv, xvi, xxx, yaa, yaaa, yaaaa, yaampun, yaapa, yabg, yabukannya,
 yach, yacob, yah, yahh, yakaya, yamaha, yangada, yangkut, yanhg,
 yani, yanti, yanto, yaopo, yasyaratnya, yata, yaterima, yatim,
 yatsiru, yayasan, yayuk, ybs, ybsyaitu, years, yek, yen, yenny,
 yesus, yglalu, ygn, yh, yha, yitno, yk, ykh, ykp, yl, yll, yng, yo,
 yoga, yogi, yogyakarta, yohan, yok, yolanda, yongky, yono, yoo,
 yooo, yoost, yordana, yosakoi, yoshia, yotance, you, your, youth,
 youtube, yoyok, yp, ypab, ypac, ysh, ythibu, yuda, yudha, yudho,
 yudo, yulaikah, yuli, yuliati, yunaedy, yunanza, yuni, yunia, yunita,
 yusa, yusari, yustisi, yusuf, yuyun, yyang, yyh, zabra, zaelani,
 zahir, zahira, zainal, zakat, zaman, zamannya, zaqi, zebra,
 zebracross, zerino, zeus, zg, zis, ziswaf, zona, zonk, zubair,
 zuhrina, zul, zulfa, zurat, gg, atas, الله, السلام, الس, اك, ات,
 لا, update]

Enclosure C.2 Terms After Pre-processing with Stemming and Basic Cleaning and Operations

[aamiin, aan, ab, abaca, abadi, abai, abang, abar, abd, abdi, abdul, abg, abidin, abis, abonemen, abonmen, about, abs, absah, absen, absensi, abu, abubakar, ac, acang, acara, acau, acc, access, account, accurated, aceh, ach, achmad, acr, acra, actingnya, action, actionny, actionnya, acu, acuh, acurat, ad, adaa, adab, adain, adakan, adalag, adany, adap, address, ade, adek, adfik, adha, adhitya, adhiwacana, adi, adihusada, adik, adil, adipura, aditya, adiwirakusuma, adja, adk, adkah, adl, adlah, adlh, adm, administrasi, administrasitrims, administratif, administration, adminjam, adminmedia, adminstrasi, adok, adri, adu, aduh, advertising, adzan, adzikra, ae, aedangkan, aehari, aerah, af, afandi, affan, afgani, afiat, afifah, ag, aga, agam, agama, agen, agenda, ageng, agr, agraria, agrorkoteknologi, agst, agt, agts, agun, agung, agus, agust, agustiana, agustina, agustinus, agustono, agustus, ah, ahadah, ahass, ahead, ahir, ahli, ahliwaris, ahmad, ahok, aiesec, ain, ainur, air, airdas, airdi, airlangga, airny, airport, aisa, aisyah, aj, ajah, ajak, ajaknapa, ajaln, ajang, ajar, ajasih, ajb, ajbakta, aje, aji, aju, ajuakan, ajudan, akad, akal, akar, akarnyaa, akas, akasia, akbar, akeh, akeyla, akhire, akhirny, akhirya, akhmad, akhrny, akhrnya, akibat, akik, akirnya, akivitasnya, akn, akrab, akredetasi, akreditasi, akse, akses, aksesoris, aksi, akta, akte, aktekelahiran, aktif, aktifasi, aktifasikan, aktifitas, aktivasi, aktivitas, aktofasi, aktvitas, akun, akurat, al, ala, alaihi, alaik, alaikum, alakadarnya, alam, alamat, alamate, alamatwonokromo, alami, alamt, alang, alangkah, alas, alasam, alasannya, alasanny, alasanya, alat, albet, alen, alesannya, alexander, alexanders, alexandro, alfa, alfamart, alfamidi, alfons, alhamdulillah, alhamdulillaah, alhamdulillah, alhasil, alhidayah, ali, alias, alif, alih, alike, alir, alit, aliyah, alkes, alkohol, all, allah, alloh, alm, almamater, almarhum, almarhumah, almt, alokasi, along, alongside, alquran, alsn, alternatif, alumni, alun, alur, alva, am, ama, amal, aman, amanah, amanat, amannya, amazing, ambengan, ambil, ambing, ambip, ambisi, amblas, ambles, ambless, ambrol, ambruk, ambul, ambulance, ambulans, amburadul, amdal, amdalnya, amelijawati, amen, america, amerta, ami, amiennnn, amiiiiin, amiiin, amiiin, amiiin, amilia, amin, amir, ampai, ampas, ampel, amphitheater, amplop, ampo, ampuh, ampun, amriyanto, an, ana, anak, anakbuahnya, anakkrn, anakx, analisis, analisa, ananta, anarkis, ancam, ancang, ancer, ancman, andai, andaikata, andal, andayani, andhika, andi, andre, andri, andrian, andriant, andrie, android, andry, aneh, angan, anggap, anggar, anggota, anggur, angin, angka, angkat, angkot, angkota, angkuh, angkut, angsu, angsur, angut, anikko, anindya, anjal, anjasmoro, anjing, anju, anjung, anjur, ank, anknya, annisah, anom, anrasumber, antarara, antariksa, anter, anti, antik, anting, antisipasi, antre, antri, antuk, antusias, anu, anugerah, anugrah, anugroho, anulir, anwar, anyar, anyu, anyway, aoakah, apo, aora, ap, apa, apabiala, apain, apakh, apalgi, apalkah, apane, apar, aparat, aparatur, apartemen, apartement, apatis, apatrm, apatw, apbd, apbn, apbnmasih, apdahal, ape, api, apkah, apkh, apkok, aplg, apli, aplikasi, apotek, apotik, app, apply, approve, apresiasi, april, apriliyanto, aprilm, apung, aq, aquarium, ar, ara, arah, araya, arcomm, ardhani, ardhi, are, area, areal, arek, arena, ari, arief, arieni, aries, arif, arifianto, arin, aris, arisan, ariyanto, arjun, arjuna, arliansyah, armada, arogan, aroma, around, ars, arsip, arsitektur, art, artara, arti, artikel, arum, arus, arwan, arya, aryadevi, as, asa, asaberkah, asai,

asalamualaikum, asallamuallaikum, asap, asas, asean, asem, asemrowo, aset, ashari, asi, asia, asih, asing, asked, asks, asli, aslkm, aslm, asn, asong, aspal, aspek, aspirasi, aspol, asrama, asri, ass, assalaamu, assalaamualaikum, assalam, assalammuaikum, assalammualaikum, assalamu, assalamuaalaikum, assalamuaalikum, assalamualaikumwrwb, assalamualaikun, assalamualakum, assalamualikum, assalamuallaikum, assalamulaikum, assallamualaikum, assallamuallaikum, asskum, asslamualaikum, asslk, asslkm, asslm, asslmlkkm, asslmualaikum, asswrwb, astaga, astama, astra, astrowidjojo, astuti, asuh, asumsi, asupan, asuransi, asusila, asyik, at, atai, atam, atao, atap, atasperhatiannnya, atauapalah, atensi, atensiny, athallah, athasya, atik, atitud, atkp, atlit, atm, atma, atmaja, ato, atom, atraksi, ats, attachment, atthar, attitude, atu, atum, atur, atw, auberta, audah, audensi, audiensi, audit, auditorium, aulia, auliawan, aur, australia, austria, autofilm, available, avoor, awak, awalnya, awalul, awam, awan, awas, awat, awet, away, awk, aws, axy, ayah, ayahanda, ayam, ayang, ayat, ayo, ayoberantas, ayom, ayoo, ayu, ayun, azas, azza, azzuhratun, baai, baar, bab, bababatan, babak, babat, babatan, babinsa, babk, baby, baca, backdated, background, backhoe, bacut, badai, badan, badsn, bag, bagaiman, bagaimn, bagaimna, bagaimana, bagimana, bagong, bagsumda, bagus, bahagia, bahak, bahan, bahari, baharu, bahas, bahasa, bahaya, bahlan, bahrul, bahu, bahwa, bahwasannya, bain, baipas, baitul, baiya, baja, bajing, bajir, baju, bak, bakar, bakerbangpol, bakery, bakesbang, bakesbangpol, bakespangpol, bakso, baksos, bakti, baku, bakwan, bal, balai, balaikota, balap, balas, balassan, bale, balek, balen, baliho, balik, balikin, baliknya, balita, baliwerti, balkot, balok, balong, balongsari, balpem, bam, bambang, bambu, ban, banayk, band, banda, bandara, bandarejo, bandel, banding, bandung, bang, bangan, bangbang, banger, banget, bangga, banggan, bangil, bangkal, bangking, bangkit, bangkrut, bangsa, bangsal, bangun, bangunsari, banjar, banjarmasin, banjarsugihan, banjir, bank, banner, banswie, bantal, bantaran, banteng, banter, bantu, bantuanya, banya, banyakk, banyak, banyu, banyue, banyumas, banyune, banyurip, banyuurip, banyuwangi, bapakyg, bapemas, bappedda, bar, bara, barang, barangkali, barat, barata, baratajaya, bareng, baret, barrier, baring, baris, barometer, baron, baruh, baruk, barusan, bas, basah, base, basem, basket, basmi, bass, basuki, bata, batago, batal, batang, batas, bathin, batik, batin, batu, batuk, bau, bauar, baur, bawa, bawahanya, bay, baya, bayak, bayam, bayan, bayang, bayar, bayare, bayi, bayu, bazaar, bazar, bb, bbanyak, bbm, bbn, bbpjn, bbrp, bca, bdbek, bdh, bds, be, beacukai, bearti, beasiswa, beasiswakanpadahal, bebagaimacam, beban, bebarapa, bebarengan, bebas, bebek, bebelit, bebrp, becak, becek, becus, beda, bedah, bedanta, been, begadang, begal, bego, behind, bejat, beji, bekaitan, bekal, bekas, bekerjasama, bekingin, bekti, bel, bela, belah, belakanh, belanda, belangko, belangkunya, belangkox, belangsung, belanja, belas, belfast, beli, beliau, belikan, belit, beliunya, beljum, belli, belm, belok, belubang, beludak, bemo, ben, benah, bencana, benchmark, benda, bendahara, bendel, bendera, bendul, bendung, bene, bener, benerbikin, bengawan, bengkak, bengkalai, bengkel, bengkok, bengkulu, benhkong, beni, bening, bennee, benner, benowo, bensin, bentak, bentang, bentrok, bentuk, bentur, beoum, ber, beraatt, beraktifitas, beranda, berangkat, berani, beranta, berantas, berapaterus, beras, berat, beraty, berbhaya, berbhs, berda, beres, beresselesai, beretikaapakah, beretikad, berexpired, berfungsimhn, bergeronjal, berguir, berhimpitan, berhub, berijin, beringin, berisik, berita, beritahu, beritahukan, berjejelan, berjln, berkah, berkali, berkas, berkat,

berkatifitas, berkak, berkonfir, berktop, berlagsung, berlakuanay,
berlalu, berlgsg, berlian, berlibang, berlobang, berloksasi,
berlubangx, berm, bermaslaah, bermaterai, berpaving, bersebrangan,
bersiapuntuk, bersih, bersihin, bersikukuh, berstandart, bertaggung,
bertanggungjawab, bertanya, bertgl, berulan, berulangkali,
berwiraswata, berwirausaha, berwudhu, besa, besi, besok, best, bet,
betapa, bethel, betis, beton, better, betung, bg, bgaimana, bggung,
bgi, bgini, bgitu, bgm, bgmana, bgmna, bgmnap, bgmpun, bgs, bgt,
bgtn, bgtukah, bhabinkamtibmas, bhakti, bhineka, bhinneka, bhkan,
bhkn, bhngt, bhw, bhwa, bi, bia, biaggi, biang, biar, biara, biarin
biawak, biaya, bibi, bibir, bibis, bibit, bibliometric, bicara, bid,
bida, bidang, bidang, bidik, big, bigimana, bigung, bijak, bijaksana,
biji, bikang, bilamana, bilang, bilangan, biliton, bima, bimbing,
bina, binamarga, binanagun, binangunc, binatang, bincang, bing,
binggung, bingung, bintang, bintoro, biodata, biometic, biometri,
biometric, biometrik, biota, biro, birojasa, birokrasi, biru, bis,
bising, bismillaah, bismillah, bisnis, bisq,
bisssmillahirrohmanirohim, biyar, bj, bjn, bk, bkan, bkd, bkerja,
bkia, bkm, bkn, bkntp, bkppm, bkr, bkrj, bkrja, bl, bla, blaass,
blaik, blajar, blako, blanco, blangko, blank, blanko, blankonya,
blas, blass, blauran, blc, blcnnya, bleh, blg, blgnunggu, blgnya,
blh, blik, blimbing, blkng, bln, blndan, blng, blnnnya, blockvert,
blok, blokir, blokck, blom, bloc, blue, blum, blusukan, bmkg, bmp,
bn, bnget, bngt, bngunan, bni, bnr, bnsin, bntuan, bny, bnyak, bnyk,
bobot, bobrok, bocor, bodi, bodoh, bodong, body, boechori, bogangin,
bogi, bogokidul, Bogor, bohong, bojonegoro, bok, bola, bolaang,
bolak, bole, bolehdiuang, bolodewo, bolong, bolos, bolpen, bom,
bon, bonbin, bondong, boneka, bongkar, bongsor, bongсорjabon,
bonnet, book, booking, bopda, bor, borong, boros, bos, bosan, bosem,
bosnas, boss, both, bottle, botol, botopotih, botor, bottle, bottom,
boulevard, box, boxcluver, boxculvert, boyo, bp, bpa, bpak, bpb,
bphtb, bpip, bpjn, bpjs, bpk, bpkb, bpn, bpnt, bpom, bpsk, br,
brainware, brand, brandal, berangkat, branjanan, brantas, brapa,
brarti, brata, bratang, brati, bravo, bravoo, brawijaya, brbeda,
brcerita, brg, brhenti, bri, briefing, brigjen, brimob, bringin,
brjualan, brkas, brkenan, brlakunya, brangkat, bromo, brong,
bronggalan, bronjong, brpa, brpkoq, brselisih, brshkan, brsm, brsn,
brtemu, brti, brtnya, brtugas, bru, brusaha, bsar, bsatau, bsk,
bslm, bsok, bsr, btn, btuh, btuhkn, buah, buana, buang, buanyak,
buatkn, buaya, bubar, bubuh, bubuk, budak, budaya, buddha, budgeting,
budi, budidaya, buesar, bug, bugar, bugdet, buih, build, building,
built, bujang, buk, buka, bukit, bukk, bukkkk, bukti, buku, bulak,
bulaksari, bulan, bulang, bulansebagai, bulat, bulevard,
bulkculvert, bulog, bulu, bumd, bumerang, bumi, bumiarjo,
bumiputera, bumn, bun, bunda, bundar, bunderan, bunga, bungkal,
bungkul, bungkus, bungur, bungurasih, buntar, buntu, buntut, bunuh,
bunyi, bupati, bur, buram, burisma, burn, burning, bursa, buru,
buruh, buruk, burung, bus, busa, business, busoalnya, busuk, buta,
butchart, butir, butu, butuh, butuhkn, buu, buuu, buuuuaaaanyaak,
buuuu, buwat, buyaaaar, bvd, bwa, bwh, bwm, bwt, bxclvrt, by, byar,
byk, byr, byrnya, caamt, cab, cabang, cabe, cabut, cacat, caci,
cacing, cadang, cafe, cagar, cahaya, cahyadi, cair, cak, call, calo,
calon, calvert, camar, camat, campur, campus, can, canada, canda,
candang, candara, candi, candipuro, candra, cangkruk, cantian,
cantik, cantol, cantum, cap, capai, capek, capekk, capem, capil,
capital, captcha, car, carax, card, carefour, cargo, cari, carok,
case, cat, catat, catatatan, cathalina, catin, catur, caturgraha,
causing, cb, cbr, cc, cctv, ce, cebur, cecer, cecilya, cedera, cegah,
cegat, cek, cekung, cela, celah, celaka, celana, celesta, celik,

cellplan, cemar, cemas, cemat, cembung, cemerlang, cempaka, cempren, cena, cenderung, cengang, center, centerny, central, centre, cepak, cepat, cepek, cepekdi, cepet, cerah, cerai, ceramahinlah, cerewet, cerita, cermin, ceroboh, cerpen, ceta, cetak, cewek, cfd, chaerul, chaisun, chance, chandra, channel, channelsnya, charge, chart, check, chek, chicken, choose, chorina, christian, chrome, chuluk, chusnul, cicil, cikapundung, cikarang, cikungunya, cikunguya, cilacap, cilik, ciliwung, cimanuk, cindil, cinta, ciprat, cipta, cipunegara, ciputra, circle, ciri, cita, cities, citizens, cito, citra, citraland, city, cium, ciwo, ckarang, ckp, clara, clean, cleaning, clear, club, cluster, cluvert, cm, cmn, cntoh, co, coba, cobra, cocok, code, coklat, colek, collect, collection, colok, colombo, colombu, com, come, comfirmasi, comm, command, communication, company, compared, competition, complain, computer, conditions, condong, conect, conference, congested, congratulate, connect, contact, contoh, contohktp, control, convention, convex, cool, cop, copet, copy, cypaste, cor, corat, coreng, coret, corina, corner, corpus, council, country, cowek, cowok, cp, cpet, cpns, cpnya, cpt, cptra, cq, cr, crab, crane, crazy, cream, cri, critanya, cross, crowdid, cs, csr, ct, ctak, cuaca, cuci, cucu, cuil, cukit, cukiup, culi, culinary, cultural, culture, culvert, culvet, cuman, cumpat, cup, curang, curhat, curhatan, curi, curiga, currently, curvlet, customer, custumer, cuti, cutup, cuvlter, cv, cwu, cz, da, daanya, daapt, dada, dadak, dadi, dadine, daeeah, daerah, daerah, dafta, daftar, dagang, daging, dagu, dah, dahak, dahan, dahanpohon, dahlan, dal, dalanan, dam, damai, damba, damen, dampak, damping, damri, dana, danakarya, danau, dance, dandan, dangdut, dangkal, danhdut, danmenertibkan, dann, dany, dapatny, dapt, dapet, dapetin, dapt, dar, dara, darah, darat, darien, darijalan, darikecamatan, darimana, darmahusada, darmokali, darsono, darurat, darussalam, das, dasar, dasi, data, database, datan, datar, dateng, datertibkan, dating, datng, daulat, daun, daur, david, dawarblandong, day, daya, dayu, db, dbangunnya, dbawah, dbayangkan, dbd, dberi, dbl, dbuang, dcharge, ddidepan, de, dealer, dear, debat, debet, debit, debitny, debu, december, dech, dedaunan, dedy, degeneratif, deh, dehh, deka, dekatan, deket, dekt, delain, delapan, delegasi, deles, delete, della, delta, deltamas, demak, demam, demikianmemang, demo, demografi, den, denda, dendam, denga, denga, dengam, dengar, denger, denny, depa, depag, dephub, depo, depok, deposito, depot, dept, derajat, deras, derasseharusnya, derek, deres, deret, derh, derita, dermaga, derri, des, desa, desain, desak, desakan, desas, desember, desk, desokkan, destinasi, desus, detail, deteksi, detik, detikcom, detil, dev, devanda, developer, development, devi, dewan, dewasa, dewe, dewi, dftr, dg, dgan, dh, dharma, dharmahusada, dharmawanga, dharmawangsa, dhi, dhimas, dhuafa, dhuhur, di, diabetes, diah, dialiaran, dialog, diam, diambail, diambilbukti, diameter, dian, dianaktirikan, dians, diaspas, diatasmengingat, diauruh, dibbrp, dibenakno, dibenerin, dibenerne, diberitahi, diberitahu, diberitahukan, diberitau, dibersihkan, dibersihkanoeh, dibikin, diblakang, dibngn, dibox, dibpjs, dibri, dibsekitar, dibulet, dibungurasih, dibw, dibwa, dibwh, dicekan, dicheck, did, didaera, didapaatkan, didatabase, didi, didik, diding, didispenduk, didlm, didpt, didtgi, didistribusikan, diedonk, diet, dietisien, difabel, difogging, difollow, diform, digital, digits, diguankan, diguyut, dihemtikan, dihidupkn, dihibau, dihub, dii, diijinkan, diingikan, diinjau, diinput, diinternet, dijakarta, dijhalan, dijkt, dijl, dijl, dikarekan, dikarenakam, dikarnakan, dikawatirkan, dikei, dikemanain, dikembalikn, dikerjasamakan, dikertajaya, dikirm, dikit, diklat,

dikmas, dikmbalikn, diknas, dikomplek, dikoordinir, dikrm, dikrnkan, diksh, dikti, dikuatirkan, dikuatrikan, dikwsn, dilaksanakn, dilaksanakna, dilayanai, dilegalisir, dilema, diler, dilingkungn, dilontang, diluncurkn, dim, dimaafkaan, dimallsaat, dimanasoalnya, dimarmoyo, dimensi, dimn, dimna, dinar, dinas, dinding, dinebul, dingin, dinginden, dinihari, dinkes, dinkominfo, dino, dinoyo, dinsos, dinyalakaan, diobrak, diolor, diombang, dionisius, dipake, diparanu, dipasng, dipaving, dipdam, dipemkot, dipenyebrangan, diperbaiki, diperhatikn, diperijinannya, diperjualbelikan, dipersilahkan, dipertanggungjawabkan, diping, dipingir, dipintarri, dipnaker, dipo, diponegoro, diponggo, diport, diprbaiki, diprint, dipsng, diptoses, direaliasikan, direct, directly, direksi, direktur, direlease, direson, diretract, direview, dirgahayu, dirjen, dirusun, dirusunnawa, dirut, disabilitas, disalahgunakan, disblh, disbudpar, disby, disbyatau, disco, disdagin, disduk, disdukcapil, disdukcapil, disebarluaskan, disebrang, disediakam, disekitarnyahampir, disemolo, disemoni, disesuaikan, dishare, dishub, dishubkominfo, disidak, disidoardjo, disiplin, disko, diskominfo, diskotik, diskriminasi, diskus, diskusi, dislike, disnaker, disni, disparta, dispenda, dispendik, dispenduk, dispendukapil, dispendukcail, dispendukcapil, dispendukcapilsurabaya, dispensansi, disperdag, disperdagin, disperindag, dispilin, display, disposisi, disprnduk, distribusi, distributor, distu, disurabaya, disurh, disuru, disurug, disurvey, disy, ditagihselang, ditandatangani, ditandatangkan, ditangani, ditawarin, ditelp, diterma, diter, ditetima, ditiadakan, ditindak, ditindaklanjuti, ditindaklanjuti, ditindaklanjuti, ditindaklanjuti, ditinggl, ditinjau, ditl, ditlp, ditmbah, ditndak, ditrtibkan, dittd, ditumpuhin, ditutp, dituwowo, diumumkan, diupdate, diva, divalidasi, dj, djakarta, djalan, djanjikan, djohar, djoko, djony, djuli, dk, dka, dkasih, dkcamatan, dketahui, dkh, dki, dkk, dkp, dkpdinas, dkrenakn, dkrth, dkuh, dkunjungi, dl, dlahan, dlam, dlarang, dll, dllnya, dlu, dluar, dm, dmkn, dmnn, dmna, dn, dna, dngan, dngn, doa, doanggg, doank, dobel, doc, document, dodok, doi, dok, doks, dokter, dokterny, doktrin, dokumen, dokumenter, dolan, dolly, dolor, dominan, dominasi, domisili, domisilikarena, donal, donald, donas, dongkol, donk, donna, donny, donokerto, donomhlyo, donomulyo, donorejo, donowati, dont, dony, door, doro, dorong, dosa, dosen, double, download, dowo, dp, dpan, dpat, dpk, dpmpstsp, dpn, dpr, dprd, dpt, dptkan, dpu, dpubmp, dpucktr, dpump, dputus, dra, draft, drag, drainase, drastis, dreaming, dri, drimana, drive, driver, drivernya, driveway, driyorejo, drmh, drmn, drmn, drop, dropoff, drpd, drtd, ds, dsaat, dsampaikan, dsana, dsb, dsbnya, dselalu, dsetiap, dsidoarjo, dsitu, dskitar, dsna, dspnduk, dst, dstar, dstempel, dsuruh, dtc, dtepati, dterjadi, dtg, dtgi, dtidak, dtikungan, dtindaklanjuti, dtng, dtngnya, du, duduk, duga, duh, duit, duiittt, duka, dukcapil, duku, dkuh, dkuhpakis, dukun, dukung, duli, dulan, dulunya, dulur, dumar, dunia, dunk, dupak, duplikat, duplikat, durasi, durasim, duri, durian, duriat, durung, durunge, dushub, dusun, duta, dutanggapi, duwik, dvr, dwakilkan, dwi, dwilayh, dwrg, dy, dyah, ea, ealah, ebelum, ebktp, eblmny, ecek, ecer, ecky, eco, ecowisata, edaaaan, edar, edisi, edit, education, edukasi, edukatif, edy, ee, efek, efektif, efektifitas, efektivitas, efendi, efesien, effendie, efisien, efisiensi, egk, ego, eh, ehealt, ehealth, ehh, ehth, ehthhhh, eigendom, eko, ekonomi, ekonomis, ekor, ekosistem, ekowisata, eks, eksekusi, eksekutif, ekskul, ekspedisi, ekspetasi, eksplorasi, eksposur, ekstasi, eksterior, ekstra, ekt, ekto, ektp, ektpnya, ektpsebenarnya, ektpsurasabaya, el, elak, elampid, elang, elc, electronic, elektronika, elektrik, elektronik, elektronika,

elektronikkoq, eletronik, elia, eliazer, elit, ellis, elok, elpiji, elu, elveka, email, emang, emas, emban, embelembel, ember, embong, emeralda, emis, emng, emosi, empati, emper, empuk, emy, enak, enam, indah, endap, endik, endroso, enek, engan, enggan, enggar, engkel, engkok, english, enisa, enisushaa, entar, entas, enteng, enterprise, entrance, entry, entuk, eokowisata, epengurusan, era, eranyoto, eri, erick, ering, erlin, erna, eror, erosi, erp, error, erti, eru, erubahan, erupakan, erutama, erwin, erzawan, esa, esdm, esensi, esok, esser, estetika, estimasi, etc, etik, etika, etis, etos, eva, evakuasi, evaluasi, evandri, even, event, everyone, everywhere, evi, evyindra, ew, ewadul, ewang, ewangi, ex, example, excavator, excellence, exchange, exit, exp, expedisi, expire, expired, expo, exposure, ekspresi, express, expriid, ext, extensively, fa, facebook, faceebook, factor, fadi, fadilah, faham, fahmy, fahrezy, fahrudin, fair, fairplay, fakta, faktane, faktor, fakultas, falcon, falit, familiar, fandy, fanspage, fany, farah, farida, farma, farmasi, fase, fashion, fashionny, fasibilitas, fasilitas, faskes, fast, fastrespon, fasum, fatal, fathur, fauzi, fb, fc, feature, feb, febrian, februari, february, february, fee, feedback, feedbacknya, feeder, fendi, fendy, fenomena, ferdy, fest, festifal, festivak, festival, few, fika, fikelurahan, fikry, file, filenya, film, final, finally, finansial, finger, fingerprint, finish, finishingnya, finshing, fira, firdaus, firmansyah, first, fish, fisik, fitna, fitri, fitroni, fitur, fiturnya, flash, flayoffer, flazz, flora, flow, fly, flyover, foggin, fogging, foging, fokus, follow, followup, followupnya, folow, fongging, food, for, forget, form, formalitas, format, formatnys, formulir, forum, forward, foto, fotocopi, fotocopy, fotocopyan, fotografi, fotokopi, found, fr, fransiscus, free, freeday, freeway, fridayanti, from, front, frontage, fruition, fslta, fslts, fto, fuck, full, fumes, fungsi, furniture, fuso, futsal, future, fyi, gabisa, gabung, gac, gadai, gadelsari, gadget, gading, gaduh, gaduk, gadung, gadungan, gag, gagah, gagal, gases, gagh, gagu, gaji, gal, galak, galang, galau, galaxi, galaxy, galh, gali, galiaan, galih, galing, galon, galuh, galut, gambar, game, gampang, ganda, gandeng, gang, ganggu, gangguang, ganggung, gangur, ganjal, gantang, ganti, gantung, gaoleh, gap, gaptek, gapura, gara, garam, garang, garasi, garbage, garda, garden, gardu, garis, garnetha, garuk, gas, gasih, gaskatanya, gatal, gaul, gawat, gawe, gaya, gayung, gayungsari, gazaly, gazebo, gbisa, gbt, gd, gdc, gdg, gebang, geber, gede, gedor, gedung, gegar, gegas, gelak, gelam, gelap, gelar, gelas, gelembung, geletak, gelintir, gelisah, gelombang, gelora, gema, gemar, gembala, gembira, gemblong, gembok, gembong, gembongtebasan, gempu, gempol, gena, genang, genap, gencar, gendang, generally, generasi, gengsi, genteng, gentengkali, genting, gera, geradi, gerah, gerak, geram, gerangan, gerbang, gerbangnews, gereja, gerejagembala, gerinda, gerobak, gerombol, gersang, gersik, gerus, gesa, gesek, geser, gesit, gesung, getah, geyzha, gg, ggi, gheta, giandi, giant, giat, gigi, gigih, gigit, giki, gila, gilang, gilir, gimna, gin, ginian, ginjal, giras, giri, girik, girilaya, girsang, gita, gitodr, give, gizi, gki, gkn, glangsing, gledekan, gledhekan, global, glora, gm, gmna, gn, nggan, gni, gnung, go, goda, gogor, gojek, gol, golong, goni, goo, good, goodandcoolstudio, google, googlemap, googling, gopoh, gor, goreng, gorenza, gorng, gorong, gosip, got, gota, gotong, gowo, goyang, gpp, gr, gragal, graha, grahadi, grand, grandcity, grande, grandmax, granting, gratis, gratisssss, great, green, greencleen, greenouse, greges, grendo, gresges, gresik, gresikan, grha, gringsing, griya, grnangan, grobaknya, grogi, grogol, grosir, group, grudo, gt, gtt, gtu, gtuuuu, gub, gubeng, gubernur, gubris, gubuk, gudang, gugur, gula, guling,

gulir, gulita, gun, gunawang, gunawangsa, gundih, gundu, gunting, gunung, gununganyar, gunungsari, gurau, gurbernuran, guru, gurung, gus, gusnanto, gusur, gutter, guyur, gwalk, gym, ha, habiburrazak, habiburtaxak, habis, habitat, hack, had, hadap, hadiah, hadir, hadits, hadiyanto, hadrah, haduhh, hafissa, hahahahahaha, hai, haaaa, hajar, hajat, haji, hak, hakata, hakim, hakini, halal, halaman, halang, haliem, halim, hall, hallo, halloo, halte, haluan, halus, hama, hamba, hambat, hambur, hamil, hamim, hamper, hanamasa, hanandika, hancur, handle, handycraft, hang, hangat, hangus, hantu, hanua, banyak, hanyut, happy, hapus, har, haram, harap, harapn, haras, hardianti, hardware, harga, hari, harimngenai, harini, harinya, haris, harley, harmoni, harry, hars, harsono, hartanto, hartono, haru, harua, haryadi, haryono, has, hasanudin, hasil, hasilny, hasyim, hati, hatta, hatur, haus, have, having, hay, hbs, hbs, hbsag, hczm, hdp, he, health, hearing, hebat, heboh, hehe, hehehe, hehehehe, hela, helat, hello, helm, helmiairan, hemat, hempas, hendra, hendrik, heni, henny, henti, hepatitis, heran, here, heri, heritage, hermawan, heru, hewan, hgb, hi, hias, hibah, hibuaran, hibur, hidayat, hidayatitrim, hidup, hiduphoax, hidupin, hidupx, hijab, hijau, hijrah, hijuanya, hiks, hilal, hilang, hilir, himbauan, himpitan, himpun, hindar, hindu, hinga, hinggil, hirau, hirup, histori, history, hitam, hitung, hj, hjks, hjn, hlg, hm, hmm, hmmm, hmpir, hny, hnya, ho, hobi, hoeiy, holes, holland, hologram, home, honda, hongga, honor, honorer, hook, horizontal, hormat, hormta, hospital, hospitality, hotel, house, however, hp, hpl, hpnya, hr, hrd, hrga, hri, hrnya, hrs, hrsnya, hrus, hsl, hslnya, hsrus, https, hub, hubu, hubung, huda, hudayanto, hujan, hukmi, hukum, hulu, humada, human, humas, humor, hun, huni, huruf, husada, hut, hutagaol, hutan, hutang, hvs, hypermart, hypmc, ibadah, ibis, ibrahim, ibtidahiyah, ibuk, ibukk, ibukku, ibukota, ibunda, ibupetugas, ice, ichsan, ichsananda, icon, id, idam, idap, ide, ideal, identifikasi, identik, identitas, identity, idi, idpel, idul, ied, ifan, iformasi, iga, igd, ign, ii, iia, iii, iiic, ijasa, ijasah, ijasahnya, ijazah, ijin, ijinan, ijinnya, ijo, ijone, ika, ikado, ikan, ikana, ikat, ikhlas, iki, ikkousha, iklan, iklim, ikon, ikt, iku, ikutsertakan, ikuyt, ikwan, ilah, ilalang, ilegal, ileh, ilham, ilmu, ilustrasi, im, image, imam, imanudin, imas, imb, imbal, imbang, imbas, imigrasi, immigrasi, immunoglobulin, impare, impi, implementasi, implisit, impression, impressive, improve, improvements, in, inap, inbox, incar, inci, inda, indah, indahsari, independent, india, indihome, indikasi, individu, individual, indo, indomaret, indomart, indonesia, indonesiabaru, indonesian, indovision, indra, indragiri, indrapura, indrawati, induk, indung, industri, industrial, industry, infaq, infeksi, info, infojalanberlubang, infomasi, infone, infoo, infor, informasi, informasinnya, informasix, informatif, informatika, information, informnya, infox, infrastruktur, infromasi, infus, ingg, inggih, inggit, inggris, ingi, ingiiiiiin, ingkang, ingkar, ingn, ini, inipun, inisial, inisiatif, injak, injin, injing, injoko, ink, inklusi, inkubator, inni, inovasi, inpres, input, inputan, insan, insatansi, insinyur, inspeksi, inspirasi, instalasi, instansi, instant, institusi, institut, instruksi, insya, insyaallah, intan, integrasi, intensif, intensitas, interaksi, interaktif, interface, intern, internal, internasional, international, internet, internete, intervensi, interview, inti, intiland, intimidasi, into, introspeksi, investasi, investigasi, investor, inzaghi, ioleh, ioppabf, ios, ip, ipam, ipar, ipb, iph, ipit, ippa, ips, ipt, ipul, ir, ira, irawan, ird, irg, iri, iring, iris, irka, ironis, irsyad, iruan, irus, irvan, irwan, isa, isasi, isbn, iseng, isi, isis,

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kartika, kartini, kartu, karung, karunia, karwo, karya, karyawan, karyawanmisal, karyawannya, kas, kasar, kasatgas, kasatpol, kasek, kash, kasi, kasiani, kasianingrum, kasih, kasihan, kasihh, kasik, kasil, kasmadi, kasur, kasus, katamso, katamya, katax, kate, kategori, kathah, katholik, kati, katolik, katung, kaum, kav, kavling, kawal, kawan, kawasan, kawatih, kawatir, kawin, kaya, kayak, kayak, kayu, kayuh, kaza, kb, kbbi, kbbl, kberadan, kbersihan, kbetulan, kbli, kbr, kbs, kbtln, kcamatan, kcl, kclakaan, kdg, kdng, kdpn, ke, keadaanya, keberadaanya, kebersihanpertamanankms, kebesihan, kebetulanyang, kebijakaalasan, kebijakanya, kebijaksanaann, kebijaksananya, kebon, kebonagung, kebonsari, kebraon, kebtln, kebun, kebut, kec, kecaatan, kecamatan, kecamatanpakal, kecamatansampe, kecamatansukomanunggal, kecamatansurabaya, kecamatanya, kecamatn, kecamawan, kecamtan, kece, kecelakaan, kecewa, keci, keclakaan, kecoa, kecuali, kedaera, kedal, kedap, kedip, kedispenduk, keduk, keduluan, kedung, kedungbaruk, kedungcowek, kedungdoro, kedungmangu, kedungsari, kedungsroko, kedurus, keebanjiran, kehadiannya, kehbisan, keja, kejaksaa, kejam, kejar, kejawan, kejer, kejut, kekal, kekangghu, kekilafan, kekuatiran, kekurangannya, kel, kelabu, kelah, kelahi, kelahiranya, kelak, kelamin, kelanakota, kelanjutanya, kelar, kelas, kelengkapn, kelepat, keliling, kelinci, keling, kelipat, keliru, kelok, kelola, kelompok, kelontong, kelsi, kelt, kelua, keluan, keluar, keluarahan, keluarga, keluarha, keluarkondisi, keluh, kelupas, kelur, kelurahan, kelurshan, keluyur, kemah, kemarau, kemari, kemarin, kemas, kematiannya, kemayorab, kembal, kembalikembali, kembang, kembangan, kembar, kembarsesuai, kemecatan, kemenag, kemendikbud, kemenkumham, kemlaten, kempes, kemudi, ken, kena, kenacetan, kenah, kenal, kenan, kenang, kenanga, kenap, kencana, kencang, kencing, kendal, kendala, kendali, kendalsari, kendang, kendarangsari, kendara, kendaraaan, kendaraan, kendor, kendung, kene, kengawuran, kenjaran, kenjeran, kenongo, kenpa, kenpark, kentjono, kentrung, kepala, kepd, kepel, kependudukn, kepentingan, kepilisian, keplek, kepmen, kepnsan, keponakan, kepraon, kepsek, keputran, ker, kera, kerabat, kerah, keramik, kerap, kerapu, keras, kerawang, keren, kerepot, kereta, kering, kerja, kerjabakti, kerjain, kerjasama, kerjasamanya, kerjasosial, kernet, keropos, keroyok, kertajaya, kertas, kerto, kertoadi, kertoarjo, kertomenanggal, kerudung, keruh, keruk, keruma, keruskan, kes, kesah, kesal, kesalahpahaman, kesan, kesana, kesanya, kesbangpol, kesby, keseharan, kesel, kesiap, kesini, kespa, kesra, kesumba, kesurabaya, ket, keta, ketabang, ketaggapan, ketar, ketat, ketawa, ketemu, ketenagakerjaan, ketentruman, keti, ketidakberesan, ketidaknyamanan, ketidaknyamanannya, ketidaksesuaian, ketidaktransparasinya, ketik, ketilka, ketimbang, ketindaklanjutan, ketintang, ketlisut, ketrampilan, ketrangan, ketua, ketuk, ketus, ketya, kevin, kewalahan, kewarganegaraan, kewen, kewirausahaan, kfc, kh, khadijah, khair, khan, khansa, khas, khawathir, khawatir, khm, khodijah, khofifa, khoir, khujanan, khursus, khusus, khususnya, khusus, khususny, kia, kiai, kian, kicau, kidul, kikis, kila, kilas, kim, kimia, kincir, kinerja, kios, kipas, kipem, kir, kira, kirain, kiri, kirim, kirima, kiro, kis, kisapbn, kisapbnitu, kisar, kitap, kitapnya, kitas, kitir, kiyomi, kjadian, kk, kkecamatan, kkkartu, kn, knkorupsi, knkurangan, klaim, klain, klakahrejo, klampis, klanggri, klarifikasi, klas, klasifikasi, klau, klemens, klenteng, kliatan, klien, klik, klingsingan, klinik, klinya, klok, klontong, klop, klopun, klr, klrga, kls, keluarga, kluarnya, klub, klumprik, klurahan, klw, klwr, km, kmarin, kmali, kmbl, kmbli, kmd, kmdian, kmdn, kmi, kmn, kmpng, kmpung, kmr, kmren, kmrn, kms, kmudian, kn,

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 kog, kohar, kolaborasi, koleksi, kolektif, kolektive, kolom,
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pompa, ponakan, pondasi, pondok, pong, ponorogo, ponten, pontoan,
poo, poor, pop, popok, porong, portable, portal, pos, posible,
posisi, positif, poskamling, posko, poso, possibly, post, posting,
postingan, posyandu, pot, potensi, potensial, poto, potocopy,
potong, potx, pp, ppat, ppdb, pph, ppi, ppid, ppp, ppupekerja, pr,
praban, pracangan, prada, pradah, pradana, praditya, pragoto, praja,
prakarya, praktek, praktik, praktis, pramadita, prambanan, pramuka,
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precast, prediksi, prekompetision, preman, premi, prepcom,
presentasi, presiden, prestasi, preventif, preyek, prg, prhatiannya,
prhatiannya, pribadi, pribumi, prihah, prihal, prihatin, priksa,
prima, prime, primer, prin, princes, prinsip, print, printernya,
printnya, priok, prioritas, pripun, privacy, privasi, priyo, prkir,
prnh, pro, proactif, proaedinnya, problem, problematika, proc,
procedure, process, prodent, prodi, producer, production, produk,
produksi, produktif, produktifitas, produsen, proesnya, prof,
profesi, profesional, profesionalitas, professional, profil,
profile, profit, progam, program, progres, progress, project, promo,
promosi, promote, prona, propaganda, properti, property, propinsi,
proposal, prose, prosedur, proses, prosesya, prostitusi,
proteksionis, protektif, protes, protokol, protol, proudcitizen,
prov, provinsi, proyek, proyeksi, prr, prubahan, prudential,
prusahaan, ps, psd, psdiii, psikolog, psikologi, psikologis, psr,
psswrd, psswrod, pt, ptc, ptgs, ptjsr, ptk, ptn, ptoyek, ptpn, pts,
ptt, ptugas, ptugasnya, ptus, pu, puas, puasa, pub, public, publik,
publikasi, publish, pucang, pucangsewu, pucsng, pudar, puhan,
pujasera, puji, pukeemas, pukesma, pukesmas, pukis, pulang, pulau,
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punggiran, punggung, pungli, pungut, puniko, puny, punyak, pupns,
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puskesmas, puspa, pustaka, pustu, putar, putat, puter, putih, putra,
putri, putro, putry, putugas, putung, putus, puukul, pwrtanyaan,
qowi, qs, qt, qta, quality, quick, quite, quote, qurban, qurrotu,
qwxgr, qx, ra, raba, rabb, rabu, rachmad, rachman, rachmat, radio,
radit, radius, rafif, rafli, raga, ragu, raharja, rahasia, rahayu,
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ratingnya, ratna, ratu, ratus, rawa, rawan, rawasan, rawat, rawon,
raya, rayajalan, rayan, rayap, rayon, rayyan, razia, rb, rban, rd,
rdk, re, reach, ready, realisasi, realise, rebek, rebut, recheck,
recom, rekomendasi, record, reda, redam, redita, referensi,
reformasi, refresh, regard, regards, regency, register, registered,
registrasi, registrasj, regulasi, reguler, rehabilitasi, rejo,
rejosari, rek, reka, rekam, rekan, rekap, reken, rekening, reklame,
rekom, rekomendasikan, rekomendasi, rekondisi, rekrut, rel, rela,
relatif, relation, releasing, relevan, religi, rell, relokasi, rem,
remaja, remang, rembang, rembet, rembug, rembugku, rembuk, remeh,
remi, remo, rena, renang, renc, rencana, rendah, rendam, rendy,
renggut, reni, renovasi, renstra, rental, rentan, rentang, rentenir,
reog, reparasi, reply, repost, repot, reproduksi, reptil, republik,
resah, resap, resek, resepe, reservasi, reset, resi, residence,
residents, residu, resiko, resmi, respirasi, respon, respond,
responding, responnya, respons, response, responsenya,

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segenap, segi, segitu, segituada, segra, segwra, seh, sehat, seHINGA,
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 sekretaris, seksi, seksual, sektor, sektoral, sela, selagi, selam,
 selanat, selang, selaras, Selasa, selat, selatan, selebaran,
 seleksi, selenggara, selep, selesai, selesaibisa, selese, selesei,
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 selmat, selo, selok, selokan, selokonnya, selvya, semak, semalem,
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 tingal, tinggal, tinggalny, tinggaol, tingginya, tingkat, tiningsih,
 tinjau, tionghoa, tiongkok, tip, tipu, tirakat, tiri, tirto,

tirtoroto, tirtosari, tirtoyoso, tiru, tissue, titel, titik, titip, tiup, tiwas, tj, tjandra, tjap, tjd, tjnfwm, tju, tk, tkg, tkj, tklb, tkp, tkpnya, tks, tksj, tkzmvm, tl, tlah, tleler, tlf, tlh, tlng, tlong, tlp, tlpn, tlpnya, tman, tmbak, tmbaksari, tmn, tmpat, tmpt, tmptny, tnda, tndakan, tngan, tnggapan, tnggl, tni, tnp, tnpa, ntang, tny, tnya, tnyakan, tnyk, tnyt, todak, toefl, toejoengan, toenjoengan, toga, togel, toilet, tok, token, toko, tokoh, tol, tolak, toleransi, toll, tolng, tolonggg, tolongin, toloooong, toloooooonggg, tombol, tomcat, tomo, tomtika, tomy, ton, tonase, tong, tongat, tonggo, tonggone, tongkrong, tonjol, tonton, tooh, took, tooooloooong, top, topang, topi, topik, torawitan, toserba, tot, total, totok, totong, tour, tourists, tower, toxic, tp, tpa, tpi, tps, tpst, tpu, tq, tra, traamkasih, trace, track, trackan, tracking, trade, tradisi, tradisional, traditional, traffic, trafficlight, trafic, trafict, trafik, trailer, train, training, tranfer, tranferan, tranparan, trans, transaksi, transfer, transiit, transparan, transport, transportasi, trantib, trap, trash, travel, traveling, travelled, trayek, trbit, treimakasih, trek, trem, trenggalek, trenggilis, trerima, trganggu, tri, tria, trif, trim, trima, trimah, trimakasi, trimakasih, trimaksih, trimkasih, trimksh, trims, trimss, trimz, trip, tripartit, trirismaharini, triyogo, trjadi, trkait, trlalu, trlambat, trlbih, trlebihi, trm, trmaksh, trmkasih, trmksh, trmkasih, trmpatnya, trmsuk, trnyata, trnyt, trobel, tronton, trotar, trotoar, troubel, trouble, trrsebut, trrtib, trs, trsbt, trsbut, trsebut, trtulis, tru, truck, truk, trunojoyo, trutama, try, tryout, tsbmengingat, tsbmohon, tsbt, tsbut, tselamat, tsh, tsulatsi, tt, tta, ttap, ttapi, ttd, ttep, ttga, ttp, ttpi, ttpny, ttrims, tu, tua, buah, tuai, tuan, tuang, tuastir, tuban, tubuh, tuch, tuduh, tugas, tugu, tuh, tuhan, tuju, tujuanya, tujuh, tuk, tukang, tukar, tulang, tulip, tulis, tulisane, tulang, tulangono, tumah, tumbang, tumbuh, tumpah, tumpang, tumpu, tumpuk, tuna, tunai, tunanetra, tunda, tundaektp, tungakan, tunggak, tunggal, tunggu, tunjang, tunjung, tuntas, tuntun, tuntut, tupai, tupoksi, tupoksinya, tura, turi, turis, turmudi, turn, turun, tutp, tutup, tutupin, tuwowo, tv, tvri, tvrxy, tw, twitter, tx, ty, tya, uang, uangpdhl, uanh, uap, uas, ubah, ubaya, ubayaantara, ubi, ubung, ucapakan, ucapkn, udan, udang, udara, ugal, ugalan, ugm, ugo, uinsa, ujan, uji, uju, ujung, ujuan, uk, ukl, ukm, ukt, ukur, ukuranya, ulah, ulan, ulang, ulangtahun, ular, ulas, ulat, uleg, ulegnya, ulek, ulis, ulta, ulum, ulung, ulur, um, umat, umbul, umk, umkm, umpama, umr, umroh, umu, umur, un, unair, unbk, unda, undang, under, underpass, undi, undip, unduh, undur, uneg, unek, unesa, ungaran, unggah, unggas, unggul, unhtuk, unit, units, univ, universitas, university, univrsta, unjung, unkm, unmer, unsur, unt, untag, untik, untk, untuj, untun, untung, uotz, up, upa, upacara, upah, upaya, update, updatecetak, updated, upeti, upkan, upl, upload, uploadnya, upn, upt, uptb, uptd, uptsa, urai, urak, uras, urban, urgensi, urgent, urgentl, urinoir, urip, uripsumoharjo, urug, urugan, uruk, urun, urus, urut, ury, us, usaha, usahasku, user, username, usha, usia, usir, usman, usul, usut, uswah, utama, utang, utara, utilitas, utnk, utuk, uturn, uu, uwes, uwm, va, vaksin, vaksinasi, valet, valid, validasi, vanantia, vandalisme, variasi, vasum, vc, vcntiusrkzt, vegetasi, velum, vendor, venezuelan, veri, veridikasi, verifikasi, vernando, versi, vertigo, very, veteran, vi, via, viaduct, vibro, victor, victory, video, videotron, view, vihara, vii, viii, villi, vinsensius, violation, virayanti, visa, visi, vision, visitors, visual, vita, vital, viva, vokasi, volley, volume, volumene, vonis, vs, wa, waaaaww, waalaikum, waalaikumsallam, waalaikumussalaam, wabah, wabarakaatuh, wabarakatu, wabarakatuh,

wabarokatuh, wabil, wacana, wach, wachid, wadah, wadhul, wadiya, waduk, wadul, wadulan, wadulkan, wadullan, wae, wafat, wage, wahh, wahidin, wahyu, wahyudi, waiterss, waiting, wajah, wajar, waji, wajib, wakil, wakkil, waktux, wakyu, wal, wala, walafiat, walaikum, walaikumsalam, walhasil, wali, walikota, walikotaku, walimurid, walk, walopun, walupun, wana, wang, wangsa, wanita, wapo, warahmatullaahi, warahmatullahi, warahmatuwa, waralaba, waras, warda, wargaanaknya, wargakarena, wargawarga, wari, waring, waringin, waris, warkop, warming, warna, warnet, warning, warohmatullohi, waru, warugunung, warung, warungtoko, waruyang, was, wasalamualaikum, wasalamualaikum, wasallam, wasana, wash, washlap, waspada, wassalam, wassalamualaikum, wassalammuallaikum, wassalamu, wassalamualaikum, wassalamualaikumwrbw, wassalamualikum, wassallam, wassallamualaikum, waswas, watak, water, waterpass, watga, watt, watung, wawancara, wawww, wayah, wayan, wb, wc, web, webite, websita, website, websitenya, websitesapwarga, wedi, weekend, wejhangen, welcome, well, welut, wenang, werda, wes, western, wetan, wetanpemerintah, wewenang, what, which, who, why, wib, wibiseno, wibiseno, wibowo, widiatmoko, widodaren, widodo, widya, wiffinya, wifi, wifinya, wiguna, wih, wijaya, wijayanto, wijono, wil, wilangan, wilangun, wilatah, wilayah, winda, window, windows, windu, windwos, wing, wira, wirasasta, wiratno, wirausaha, wirawati, wiri, wis, wisata, wisatawan, wishes, wisma, wisman, wismo, wisnu, witoyo, wiyung, wkt, wktu, wl, wlaupun, wlikota, wna, wni, woelan, woiiii, wokeyy, wonkkromo, wonoayu, wonoclo, wonocolo, wonokitri, wonokromo, wonokusumo, wonokusumoterkesan, wonorejo, wonosari, wonten, world, worst, would, wow, wp, wr, wrg, wrga, wslkm, wtc, wtctg, wuahh, wudhlu, wudhu, wujud, wulandari, wushu, www, xi, xib, xii, xiii, xiv, xix, xl, xm, xv, xvi, xxx, yaa, yaaa, yaaaa, yaampun, yaapa, yabg, yabukannya, yach, yacob, yah, yahh, yakaya, yamaha, yangada, yangkut, yanhg, yani, yanti, yanto, yaopo, yasyaratnya, yata, yaterima, yatim, yatsiru, yayasan, yayuk, ybs, ybsyaitu, years, yek, yen, yenny, yesus, yglalu, ygn, yh, yha, yitno, yk, ykh, ykp, yl, yll, yng, yo, yoga, yogi, yogyakarta, yohan, yok, yolanda, yongky, yono, yoo, yooo, yoost, yordana, yosakoi, yoshia, yotance, you, your, youth, youtube, yoyok, yp, ypab, ypac, ysh, ythibu, yuda, yudha, yudho, yudo, yulaikah, yuli, yuliati, yunaedy, yunanza, yuni, yunia, yunita, yusa, yusari, yustisi, yusuf, yuyun, yyang, yyh, zabra, zaelani, zahir, zahira, zainal, zakat, zaman, zaqi, zebra, zebracross, zerino, zeus, zg, zis, ziswaf, zona, zonk, zubair, zuhrina, zul, zulfa, zurat]

Enclosure D TF-IDF

Enclosure D.1 TF-IDF without stemming

Document Number	Term number	Weight
1	7560	0.309627
1	5885	0.197154
1	128	0.149083
1	9046	0.169361
1	2092	0.154598
1	11663	0.244357
1	10157	0.339168
1	802	0.1995
1	3827	0.18222
1	5566	0.292347
1	839	0.247961
1	7996	0.309627
1	7271	0.329658
1	12208	0.235078
1	12659	0.368709
2	3827	0.157413
2	9281	0.127532
2	6885	0.164545
2	9592	0.318514
2	10935	0.164265
:	:	:
4204	9969	0.203023
4204	5206	0.172588
4204	4025	0.137941
4204	9540	0.111666
4204	5400	0.120277
4204	9753	0.141704
4204	3517	0.121822
4204	10874	0.288266
4204	1729	0.259742
4204	12835	0.151464
4205	12657	0.235553
4205	9346	0.351482
4205	5875	0.375361
4205	2433	0.40494
4205	915	0.425031
4205	4000	0.579182
4206	12657	0.526542
4206	11818	0.850149

Enclosure D.2 TF-IDF with stemming

Document Number	Term number	Weight
1	3173	0.178028
1	4253	0.204279
1	130	0.158022
1	6398	0.180697
1	1612	0.161353
1	8151	0.260714
1	6851	0.361871
1	735	0.212854
1	2592	0.193849
1	4027	0.311915
1	766	0.256046
1	5395	0.29102
1	1575	0.320206
1	8688	0.237241
1	9016	0.393389
2	2592	0.172836
2	6485	0.140438
2	4564	0.146274
	:	
4204	9586	0.08517
4204	3362	0.701119
4204	9403	0.19866
4204	6050	0.106179
4204	1356	0.174033
4204	2795	0.141509
4204	1260	0.232119
4204	3936	0.123388
4204	6597	0.145369
4204	2292	0.124973
4204	7524	0.295722
4204	9415	0.123388
4205	9014	0.259398
4205	1615	0.289946
4205	1260	0.327278
4205	4244	0.408272
4205	144	0.409929
4205	2770	0.637813
4206	9014	0.526542
4206	8305	0.850149

Enclosure E Clustering Results

Enclosure E.1 Clustering Results After Pre-processing with Basic Cleaning and Operations

No	Keluhan	Klaster
1	saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat gang 5 no 58B ini sudah 6bulan keruh dan bau dibuat minum dan mencuci sangat susah terimakasih	2
2	Kepada Pemkot Surabaya setempat. Saya ingin melaporkan penuhnya sampah pada got di Simolawang Baru Sekolahan Gang II, hal ini menyebabkan saluran buntu hingga banjir pada saat hujan lebat, hal ini mohn segera di tangani. Terimakasih Robert Prayogo	2
3	Saya ingin melaporkan lampu pertamanan Jalan Kedung Sroko I Surabaya mati semua sebanyak 4 titik. Mohon untuk segera ditindaklanjuti. Terima kasih.	2
4	@e100ss sudah beberapa hari ini tumpukan sampah di sepanjang Jl. Banyu Urip bawah @SapawargaSby	2
5	@SapawargaSby mohon info apakah sdh ada keputusan soal sertifikasi tanah yg masih surat ijo. Terima kasih	2
6	@SapawargaSby Mohon kegiatan bakar ilalang segera ditertibkan khususnya wilayah Kelurahan Medokan Ayu. Lokasi di TPU Medokan Ayu.	2
7	selamat siang admin, saya mau menanyakan tentang perpanjangan perijinan warnet, saya coba masuk ke ssw surabaya, saya lihat di sana sudah tidak ada pilihan untuk perpanjangan perijinan warnet seperti beberapa tahun lalu, karena saya bingung saya mencoba untuk telepon ke dinas kominfo jl jimerto, saya coba menanyakan ke hal yg sama trus si penerima telepon bilang kalau perijinan online utk warnet memang sudah lama dihapus, lalu bagaimana kalau mau mengurus perpanjangan perijinan warnet, mohon infonya terima kasih	2
8	pagi min...cara ngurus surat keterangan bebas narkoba piye?	2
:	:	
4205	Assalamu'alaikum.. Apa masih dibuka pendaftaran belajar komputer gratissss? Terimakasih	2
4206	Kalau masih SMP 2 apa boleh bapak/Ibu??? Terimakasih	2

Enclosure E.2 Clustering Results After Pre-processing with Stemming and Basic Cleaning and Operations

No	Keluhan	Klaster
1	saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat gang 5 no 58B ini sudah 6bulan keruh dan bau dibuat minum dan mencuci sangat susah terimakasih	2
2	Kepada Pemkot Surabaya setempat. Saya ingin melaporkan penuhnya sampah pada got di Simolawang Baru Sekolahan Gang II, hal ini menyebabkan saluran buntu hingga banjir pada saat hujan lebat, hal ini mohn segera di tangani. Terimakasih Robert Prayogo	2
3	Saya ingin melaporkan lampu pertamanan Jalan Kedung Sroko I Surabaya mati semua sebanyak 4 titik. Mohon untuk segera ditindaklanjuti. Terima kasih.	2
4	@e100ss sudah beberapa hari ini tumpukan sampah di sepanjang Jl. Banyu Urip bawah @SapawargaSby	2
5	@SapawargaSby mohon info apakah sdh ada keputusan soal sertifikasi tanah yg masih surat ijo. Terima kasih	2
6	@SapawargaSby Mohon kegiatan bakar ilalang segera ditertibkan khususnya wilayah Kelurahan Medokan Ayu. Lokasi di TPU Medokan Ayu.	2
7	selamat siang admin, saya mau menanyakan tentang perpanjangan perijinan warnet, saya coba masuk ke ssw surabaya, saya lihat di sana sudah tidak ada pilihan untuk perpanjangan perijinan warnet seperti beberapa tahun lalu, karena saya bingung saya mencoba untuk telepon ke dinas kominfo jl jimerto, saya coba menanyakan ke hal yg sama trus si penerima telepon bilang kalau perijinan online utk warnet memang sudah lama dihapus, lalu bagaimana kalau mau mengurus perpanjangan perijinan warnet, mohon infonya terima kasih	2
8	pagi min...cara ngurus surat keterangan bebas narkoba piye?	2
:	:	
4205	Assalamu'alaikum.. Apa masih dibuka pendaftaran belajar komputer gratissss? Terimakasih	2
4206	Kalau masih SMP 2 apa boleh bapak/Ibu??? Terimakasih	2

Enclosure E.3 Clustering Results After Pre-processing with LDA and Basic Cleaning and Operations

No	Keluhan	Klaster
1	saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat gang 5 no 58B ini sudah 6bulan keruh dan bau dibuat minum dan mencuci sangat susah terimakasih	13
2	Kepada Pemkot Surabaya setempat. Saya ingin melaporkan penuhnya sampah pada got di Simolawang Baru Sekolahan Gang II, hal ini menyebabkan saluran buntu hingga banjir pada saat hujan lebat, hal ini mohn segera di tangani. Terimakasih Robert Prayogo	0
3	Saya ingin melaporkan lampu pertamanan Jalan Kedung Sroko I Surabaya mati semua sebanyak 4 titik. Mohon untuk segera ditindaklanjuti. Terima kasih.	5
4	@e100ss sudah beberapa hari ini tumpukan sampah di sepanjang Jl. Banyu Urip bawah @SapawargaSby	6
5	@SapawargaSby mohon info apakah sdh ada keputusan soal sertifikasi tanah yg masih surat ijo. Terima kasih	7
6	@SapawargaSby Mohon kegiatan bakar ilalang segera ditertibkan khususnya wilayah Kelurahan Medokan Ayu. Lokasi di TPU Medokan Ayu.	1
7	selamat siang admin, saya mau menanyakan tentang perpanjangan perijinan warnet, saya coba masuk ke ssw surabaya, saya lihat di sana sudah tidak ada pilihan untuk perpanjangan perijinan warnet seperti beberapa tahun lalu, karena saya bingung saya mencoba untuk telepon ke dinas kominfo jl jimerto, saya coba menanyakan ke hal yg sama trus si penerima telepon bilang kalau perijinan online utk warnet memang sudah lama dihapus, lalu bagaimana kalau mau mengurus perpanjangan perijinan warnet, mohon infonya terima kasih	11
8	pagi min...cara ngurus surat keterangan bebas narkoba piye?	12
:	:	
4205	Assalamu'alaikum.. Apa masih dibuka pendaftaran belajar komputer gratissss? Terimakasih	7
4206	Kalau masih SMP 2 apa boleh bapak/Ibu??? Terimakasih	10

Enclosure E.4 Clustering Results After Pre-processing with Stemming, LDA, and Basic Cleaning and Operations

No	Keluhan	Klaster
1	saya ingin menginfokan kondisi air PDAM daerah simo pomahan baru barat gang 5 no 58B ini sudah 6bulan keruh dan bau dibuat minum dan mencuci sangat susah terimakasih	1
2	Kepada Pemkot Surabaya setempat. Saya ingin melaporkan penuhnya sampah pada got di Simolawang Baru Sekolahan Gang II, hal ini menyebabkan saluran buntu hingga banjir pada saat hujan lebat, hal ini mohn segera di tangani. Terimakasih Robert Prayogo	10
3	Saya ingin melaporkan lampu pertamanan Jalan Kedung Sroko I Surabaya mati semua sebanyak 4 titik. Mohon untuk segera ditindaklanjuti. Terima kasih.	11
4	@e100ss sudah beberapa hari ini tumpukan sampah di sepanjang Jl. Banyu Urip bawah @SapawargaSby	7
5	@SapawargaSby mohon info apakah sdh ada keputusan soal sertifikasi tanah yg masih surat ijo. Terima kasih	6
6	@SapawargaSby Mohon kegiatan bakar ilalang segera ditertibkan khususnya wilayah Kelurahan Medokan Ayu. Lokasi di TPU Medokan Ayu.	0
7	selamat siang admin, saya mau menanyakan tentang perpanjangan perijinan warnet, saya coba masuk ke ssw surabaya, saya lihat di sana sudah tidak ada pilihan untuk perpanjangan perijinan warnet seperti beberapa tahun lalu, karena saya bingung saya mencoba untuk telepon ke dinas kominfo jl jimerto, saya coba menanyakan ke hal yg sama trus si penerima telepon bilang kalau perijinan online utk warnet memang sudah lama dihapus, lalu bagaimana kalau mau mengurus perpanjangan perijinan warnet, mohon infonya terima kasih	0
8	pagi min...cara ngurus surat keterangan bebas narkoba piye?	6
:	:	
4205	Assalamu'alaikum.. Apa masih dibuka pendaftaran belajar komputer gratissss? Terimakasih	0
4206	Kalau masih SMP 2 apa boleh bapak/Ibu??? Terimakasih	0

Enclosure F.1 Word cloud of Cluster 1



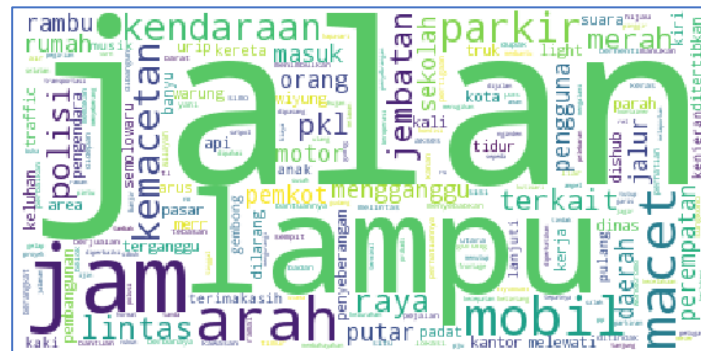
Enclosure F.5 Word cloud of Cluster 5



Enclosure F.6 Word cloud of Cluster 6



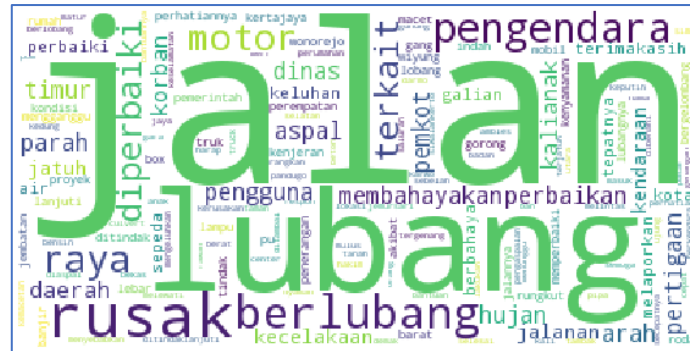
Enclosure F.7 Word cloud of Cluster 7



Enclosure F.8 Word cloud of Cluster 8



Enclosure F.9 Word cloud of Cluster 9



Enclosure F.10 Word cloud of Cluster 10



Enclosure F.11 Word cloud of Cluster 11



Enclosure F.12 Word cloud of Cluster 12



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[illegible]

Enclosure G Syntax

```
#import package
import pandas as pd
import string
import nltk
import re
import sys
import numpy as np
from Sastrawi.Stemmer.StemmerFactory import StemmerFactory
from collections import Counter
import numpy as np
import matplotlib as mpl
import matplotlib.pyplot as plt
%matplotlib inline
from subprocess import check_output
from wordcloud import WordCloud, STOPWORDS
mpl.rcParams['figure.figsize']=(10.0,8.0)      #(6.0,4.0)
mpl.rcParams['font.size']=10                  #10
mpl.rcParams['savefig.dpi']=100               #72
mpl.rcParams['figure.subplot.bottom']=.1

#inputing data
input=pd.read_csv('D:\KULIAHS2\TESIS\data_keluhan_coba.csv',header
=0,encoding='utf8')
input_df=pd.DataFrame(data=input)
pd.options.display.max_colwidth=2000

#take one column
opini_df=input_df['keluhan']

#remove newlines
noline=[]
for line in opini_df :
    result=re.sub('\n',' ',line)
    noline.append(result)

# Create a list of words by converting to lowercase and splitting
kata = [s.lower().split() for s in noline if s]
noline_ = [sublist for l in kata for sublist in l]
counts1 = dict(Counter(noline_).most_common(10))
labels1, values1 = zip(*counts1.items())

# sort your values in descending order
indSort1 = np.argsort(values1)[::-1]
```



```

# rearrange your data
labels1 = np.array(labels1)[indSort1]
values1 = np.array(values1)[indSort1]
indexes1 = np.arange(len(labels1))
bar_width = 1
mybar=plt.bar(indexes1, values1)

# get rid of the frame
for spine in plt.gca().spines.values():
    spine.set_visible(False)

# remove all the ticks and directly label each bar with respective value
plt.tick_params(top='off', bottom='off', left='off', right='off',
labelleft='off', labelbottom='on')

# direct label each bar with Y axis values
for bari in mybar:
    height = bari.get_height()
    plt.gca().text(bari.get_x() + bari.get_width()/2,
bari.get_height()-0.2, str(int(height)),
                    ha='center', color='black', fontsize=15)

# add labels
plt.xticks(indexes1, labels1)
plt.show()

#counting terms before pre-processing
from sklearn.feature_extraction.text import CountVectorizer
vec = CountVectorizer()
a = vec.fit_transform(noline)
terms1 = vec.get_feature_names()

#removing url link
nolink=[]
for line in noline:
    result=re.sub(r"http\S+", "",line)
    nolink.append(result)

#removing numbers
from string import digits
nodigits=[]
for line in noline:
    remove_digits=str.maketrans(' ', ' ', digits)
    result=line.translate(remove_digits)
    nodigits.append(result)

```

```

#removing @username
nouser=[]
for line in nodigits :
    result=re.sub(r"(?:\@|https?:\:\/\/)\S+", "", line)
    nouser.append(result)

#replacing "," to be whitespace
nocomma=[]
for line in nouser :
    result=re.sub(r"[,./]+", " ", line)
    nocomma.append(result)

#removing punctuation
nopunc=[]
for line in nocomma:
    punc = set(string.punctuation)-set('-')
    result = ''.join(x for x in line if x not in punc)
    nopunc.append(result)

#casefolding
lower=[]
for line in nopunc:
    a=line.lower()
    lower.append(a)

#stemming
factory=StemmerFactory()
stemmer=factory.create_stemmer()
stemmed=map(lambda x: stemmer.stem(x), lower)
stemmed_list=list(stemmed)

#import stop words
stop=open('D:\KULIAH          S2\TESIS\stopwordbahasa          2.csv',
'r',encoding='utf8')
stopword = []

# Convert lines into string list.
for line in stop.readlines():
    stopword.append(line.rstrip())

#remove stopwords
from nltk.tokenize import word_tokenize
trainfinal = []
for line in stemmed_list:
    word_token = nltk.word_tokenize(line) # get word token for every
line (split line into each separate words)

```

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    word_token = [word for word in word_token if not word in
stopword] # remove indonesian stop words
    trainfinal.append(" ".join(word_token))

#tokenizing
from nltk.tokenize import word_tokenize
token_keluhan=[]
for line in trainfinal:
    b = nltk.word_tokenize(line)
    token_keluhan.append(b)
token_df=pd.DataFrame(token_keluhan)

#creating tfidf
from sklearn.feature_extraction.text import TfidfVectorizer
vectorizer = TfidfVectorizer()
matrix = vectorizer.fit_transform(trainfinal)

#terms data after preprocessing
terms = vectorizer.get_feature_names()
print(len(terms))

#creating DTM
from sklearn.feature_extraction.text import CountVectorizer
vec = CountVectorizer()
X = vec.fit_transform(trainfinal)
df = pd.DataFrame(X.toarray(), columns=vec.get_feature_names())

#terms output
for i, feature in enumerate(vectorizer.get_feature_names()):
    print(i, feature)

#distance
from sklearn.metrics.pairwise import cosine_similarity
dist = 1 - cosine_similarity(matrix)
print(dist)

from sklearn.decomposition import NMF, LatentDirichletAllocation
no_features = 1000
tf_vectorizer = CountVectorizer(min_df=3)
tf = tf_vectorizer.fit_transform(trainfinal)

#Sparsicity is nothing but the percentage of non-zero datapoints in
the document-word matrix, that is data_vectorized.
#Since most cells in this matrix will be zero, I am interested in
knowing what percentage of cells contain non-zero values.
# Materialize the sparse data
data_dense = tf.todense()

```

```

# Compute Sparsicity = Percentage of Non-Zero cells
print("Sparsicity: ", ((data_dense > 0).sum()/data_dense.size)*100,
"%")

#LDA
import lda
model = lda.LDA(n_topics=15, n_iter=500, random_state=1)
model.fit(tf)
lda_representation = model.doc_topic_

#determining optimal number of clulster by using SSE
from sklearn.cluster import KMeans
import matplotlib.pyplot as plt
max_klaster=21
sse = {}
for k in range(2, max_klaster):
    kmeans = KMeans(n_clusters=k,random_state=1).fit(lda_representation)
    clusters = kmeans.labels_.tolist()
    clusters_df=pd.DataFrame(clusters)
    #print(data["clusters"])
    sse[k] = kmeans.inertia_ # Inertia: Sum of distances of samples
to their closest cluster center
    print("For n_clusters={}, The SSE is {}".format(k, sse[k]))
plt.figure()
plt.plot(list(sse.keys()), list(sse.values()))
plt.xlabel("Number of cluster")
plt.ylabel("SSE")
plt.show()

#determining optimal number of clulster by using silhouette
from sklearn.metrics import silhouette_score
for n_cluster in range(2, 21):
    kmeans = KMeans(n_clusters=n_cluster,random_state=1).fit(lda_representation)
    label = kmeans.labels_
    sil_coeff = silhouette_score(lda_representation, label,
metric='euclidean')
    print("For n_clusters={}, The Silhouette Coefficient is
{}".format(n_cluster, sil_coeff))

```

```

#determining optimal number of clulster by using CHI
from sklearn import metrics
from sklearn.metrics import pairwise_distances
from sklearn import datasets
import numpy as np
from sklearn.cluster import KMeans
chi = {}
for k in range(2, max_klaster):
    kmeans_model = KMeans(n_clusters=k,
random_state=1).fit(lda_representation)
    labels = kmeans_model.labels_
    chi[k] = metrics.calinski_harabaz_score(lda_representation,
labels)
    print("For n_clusters={}, The CHI is {}".format(k, chi[k]))
plt.figure()
plt.plot(list(chi.keys()), list(chi.values()))
plt.xlabel("Number of cluster")
plt.ylabel("CHI")
plt.show()

#K-Means for optimal number of clusters
from sklearn.cluster import KMeans
num_clusters = 15
km = KMeans(n_clusters=num_clusters,random_state=1)
%time km.fit(matrix)
clusters = km.labels_.tolist()
y_kmeans = km.predict(matrix)
input_df['klaster'] = pd.Series(y_kmeans, index=input_df.index)

#size of each cluster
from sklearn.externals import joblib
joblib.dump(km, 'doc_cluster.pkl')
km = joblib.load('doc_cluster.pkl')
clusters = km.labels_.tolist()
clusters_df=pd.DataFrame(clusters)
clusters_df['klaster']=pd.DataFrame(clusters)
clusters_df['klaster'].value_counts()

#data frame of clustering result
train_final_df=pd.DataFrame(trainfinal)
train_final_df.columns=['opini']

```

```

train_final_df['klaster']=pd.Series(y_kmeans,
index=input_df.index)
#wordcloud
a = {}
b = {}
klaster = {}
i = -1
c = {}
for j in range(num_clusters):
    i += 1
    a[i] = train_final_df.loc[train_final_df['klaster'] ==
i, 'opini']
    b[i] = ' '.join(a[i])
    klaster["klaster" + str(i)] = b[i]
    c[i]= WordCloud(collocations =
False,background_color='white',stopwords=stopword,max_words=2000,m
ax_font_size=200,
                    random_state=42).generate(b[i])
    fig = plt.figure(1)
    plt.imshow(c[i])
    plt.axis('off')
    plt.show()

```


BIOGRAPHY



Sa'idah Zahrotul Jannah was born in Surabaya, 18 September 1995. The author joined acceleration program in senior high school, SMAN 15 Surabaya. After graduated from senior high school, the author took undergraduate program in Department of Statistics, ITS in 2011-2015. Then, the author worked as statistics consultant in a private company for one year. In 2016, the author took master program in Department of Statistics, ITS. The author is an LPDP (Lembaga Pengelola Dana Pendidikan) awardee, PK-77, during this postgraduate program. The author was active to join LPDP activities as a committee, such as LPDP Edufair 2017 and LPDP Massive Action 2018. The author is also a member of LPDP East Java Community and Mata Garuda LPDP. The author was an exchange student in Human Interface and Cyber Communication Laboratory, Computer Science and Electrical Engineering, GSST, Kumamoto University for 6 months in the autumn season (October 2017-March 2018). The author is interested in data mining. Please do not hesitate to contact the author if there are any comments or questions to be discussed.

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